BULGING FROM COVER TO COVER WITH ESSENTIAL C64 INFO

10 PAGES OF GAME TIPS

COMMODORE FORMAT

If you've got a C64 then get this

ISSUE 45 ● £2.95 ● JUNE 1994

CHECK THIS OUT

A JAM-PACKED TAPE FEATURING...

REPTON 3

CLASSIC SF BLAST

SPEECH

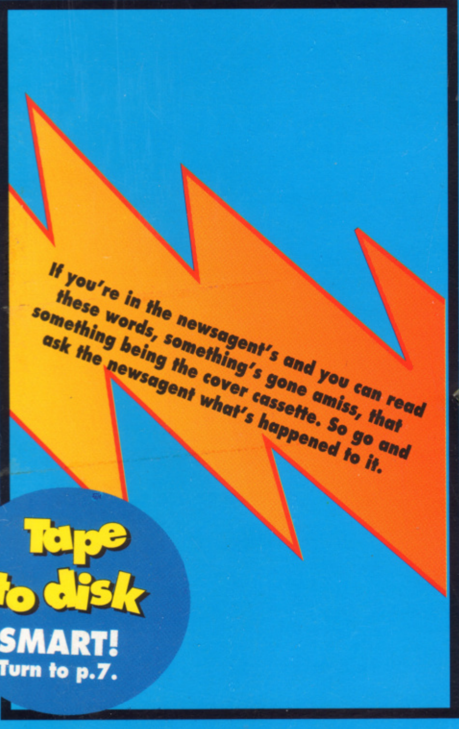
YOU'LL BELIEVE YOUR COMPUTER CAN TALK

MAYHEM MEGA REMIX

MORE STUNNING SOUNDS

6510+ ASSEMBLER

SERIOUS PROGRAMMING POWER

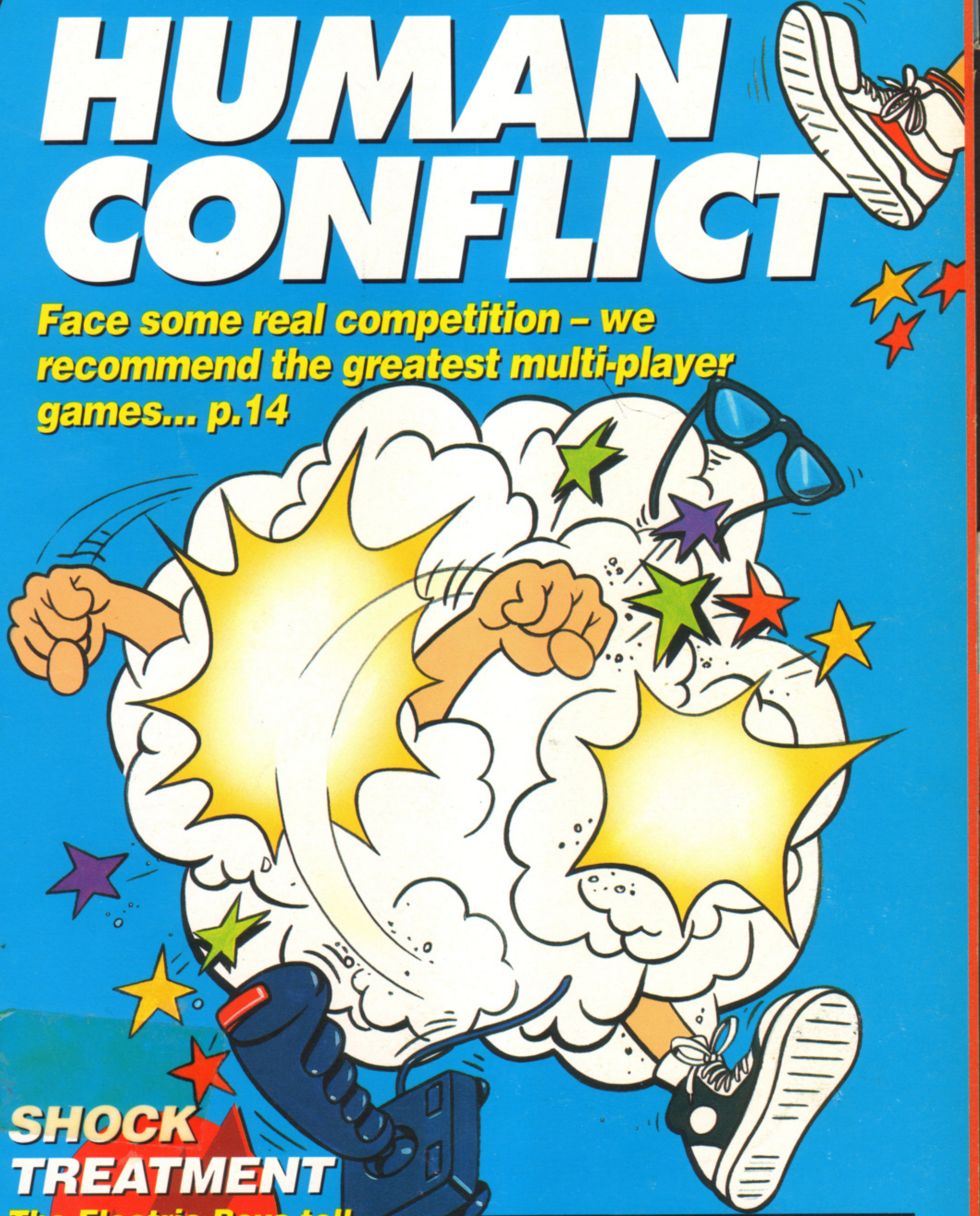


If you're in the newsagent's and you can read these words, something's gone amiss, that something being the cover cassette. So go and ask the newsagent what's happened to it.

Tape to disk SMART! Turn to p.7.

HUMAN CONFLICT

Face some real competition – we recommend the greatest multi-player games... p.14



SHOCK TREATMENT

The Electric Boys tell us how they're going to set sparks flying in the C64 scene.

Future PUBLISHING

Your guarantee of value

Well, we think this should win cover of the month, anyway.

06

9 770960 516033

PLUS Graphics advice from the experts ● Machine Code explained ● The best technical advice

ACTION REPLAY VI

Designed and Manufactured by DATEL ELECTRONICS

THE MOST POWERFUL, FRIENDLY AND FEATURE PACKED UTILITY CARTRIDGE EVER CONCEIVED!

NOW ONLY **£24.99**
WHILE STOCKS LAST

ACTION REPLAY
COMMODORE 64

TURBO LOADER
- Load 202 block program in under 6 seconds - world's fastest disk serial loader. On-board RAM and ROM achieves high loading speeds. Works with 1541/1571 Oceanic/1581.

INFINITE LIVES GENERATOR
- Automatic infinite lives!! Very easy to use, works with many programs. No user knowledge required.

PROF MACHINE CODE MONITOR
- Full 64K Freezer Monitor - examine ALL memory, including stack, I/O area and registers in their frozen state. Ideal for de-bugging or just for fun!

SPRITE CONTROL
- Freeze the action and view the sprites - watch the animation - customise your games -kill sprite collisions.

FREEZER FACILITY
- Now you can make your old slow loading programs load faster. Simply freeze the action and save to tape or disk to reload at superfast speed - no more waiting for programs to load.

DISK COPY
- Easy to use disk/file copier. Much faster than conventional methods. Ideal for backing up data disks.

TAPE TURBO
- This feature will add Turbo Reload to the programs that you save to tape - no user knowledge required.

FAST FORMAT
- Format an entire disk in about 10 seconds - no more messing about.

PRINTER DUMP - Print out your frozen screen to printer - MPS 801, 803, Epson, Star, etc. - very versatile.

CENTRONICS INTERFACE
- For parallel printers, Star, Epson, etc. Print out listings with graphic characters etc. (Cable required for parallel port £12.99)

SCREEN EDITOR
- Now you can edit the entire frozen screen with this text edit or - change names on high scores, etc. Great fun!!

GRAPHICS SUPPORT UTILITIES DISK

SLIDE SHOW - View your favourite screens in a slide show type display

BLOW UP - Unique utility allows you to take any part of a picture & "blow it up" to full screen size

SPRITE EDITOR - A complete sprite editor helps you to create or edit sprites

MESSAGE MAKER - Any screen captured with Action Replay or created with a graphics package can be turned into a scrolling screen message with music.

ONLY£9.99

THE REVIEWERS SAID...

"I'm stunned, amazed and totally impressed. This is easily the best value for money cartridge. THE CARTRIDGE KING!"
COMMODORE DISK USER

WARNING 1988 COPYRIGHT ACT WARNING

Datel Electronics Ltd., neither condones or authorises the use of it's products for the reproduction of copyright material.
The backup facilities of this product are designed to reproduce only software such as Public Domain material, the users own programs or software where permission to make backups has been clearly given.
It is illegal to make copies, even for your own use, of copyright material, without the clear permission of the copyright owner, or the licencee thereof.

DATEL ELECTRONICS LIMITED

HOW TO ORDER

24 HOUR MAIL ORDER HOTLINE
PHONE
0782 744707

Access
VISA
SWITCH

OR CALL AT OURLONDON SHOP:- **DATEL ELECTRONICS**

NOW A TOTAL MOUSE/ GRAPHICS PACKAGE FOR YOUR COMMODORE 64/128 AT A TRULY UNBEATABLE PRICE!!

COMMODORE MOUSE SYSTEM

COMPLETE WITH

OCP ADVANCED ART STUDIO

NOW ONLY £24.99

- This commodore Mouse is a high resolution two button mouse featuring optical counting, teflon guides, microswitches, rubber coated ball and high quality interface.
- When combined with OCP Advanced Art Studio this graphics package is quite simply the best system available. The features are unmatched...
- Create an image - shrink it, expand it, move it, rotate it, copy it, colour it, etc., etc,
- Spray patterns or shades, make elastic lines - stretch and manipulate shapes.
- Zoom in to add detail in fine mode.
- Pulldown/Icon driven menus for ease of use
- Mouse operation, plus joystick and keyboard control.
- 16 pens, 8 sprays, 16 brushes - so flexible anyone can create superb graphics easily.
- Full cut and paste facilities plus excellent printer support.

TOTAL PACKAGE INCLUDES MOUSE/ MOUSE MAT/HOLDER AND OCP ADVANCED ART STUDIO
PLEASE STATE IF YOU REQUIRE TAPE OR DISK

FREE!

MOUSE MAT
AND
MOUSE HOLDER
(WORTH £12.99)
WITH EACH PACKAGE

LC 100 COLOUR PRINTER PACKAGE

NOW YOU CAN PRINT OUT YOUR PICTURES IN FULL COLOUR!

- The Star LC100 Colour Printer not only prints in Near Letter Quality for your regular jobs but also prints out your pictures from Art Studio, Action Replay, etc., in fantastic colour!
- LC100 is a full Centronics printer so it works with other computers (Amiga, ST, PC etc.)
- Made possible by Datel's unique colour printer driver - now you can have a hardcopy in up to 16 colours!!
- No more to buy.

PACKAGE INCLUDES STAR LC100 COLOUR PRINTER RRP £199.00
CENTRONICS PRINTER LEAD RRP £12.99
DATEL COLOUR PRINTER DRIVER SOFTWARE RRP £19.99
NORMALLY £231.98
COMPLETE PACKAGE NOW ONLY £199.00

COLOUR PRINTER DRIVER AVAILABLE SEPARATELY ONLY £19.99

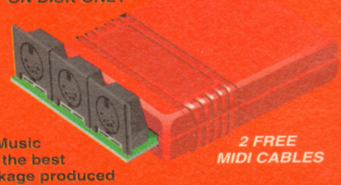
- If you already have an LC10, LC100 or LC200 Colour Printer we can supply the Driver separately.
- Works with Serial Version of LC10, Parallel Port, Sprint 128, etc.

OTHER COMMODORE ACCESSORIES

DATEL MIDI 64 INTERFACE PLUS ADVANCED MUSIC SYSTEM

ONLY £39.99

AVAILABLE ON DISK ONLY



2 FREE MIDI CABLES

The Advanced Music System may be the best MIDI/music package produced for the 64/128 offering a huge range of musical composition features & MIDI compatibility, with the Datel MIDI Interface you have the TOTAL MIDI SOLUTION!

ONLY £29.99

- Quality Commodore compatible Data Recorder.
- Pause control.
- Three digit position counter.
- Counter reset.
- Comes complete - no more to buy!

ONLY £16.99

- 3 additional cartridge slots provided.
- Wear and tear on the original connector reduced.
- Switch provided for selecting between game cartridges rather than constant unplugging.
- Reset button built-in.

FAX
0782 744292

MAIL
Send Cheques, Postal Orders or credit card details to:-

DATEL ELECTRONICS LTD. GOVAN ROAD,
FENTON INDUSTRIAL ESTATE,FENTON, STOKE-ON-TRENT,
ST4 2RS, ENGLAND.

DATEL ELECTRONICS LIMITED

222 TOTTENHAM COURT RD, LONDON W1 TEL: 071 580 6460

CF crew
SLOGGIN' IT OUT

Things got slightly out of hand this month. What started out as a friendly game of *Street Fighter 2* (purely for research purposes for the multi-player feature, you understand) ended up as a major grudge match – you know how it gets. Just because someone beats you at the computer game, the loser uses the excuse, "well, if it had been real life..." and things just develop from there...

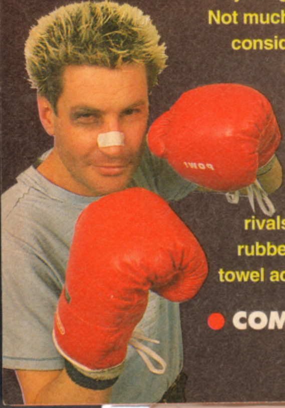
DAVE GOLDER, EDITOR AKA, THE BLACK BELTER

Actually Dave's about as near to getting a black belt as Penn and Teller are to getting accepted into the Magic Circle. With hands as hard as soggy sponges and a kick like an amputated mule (he keeps falling over) Dave's chances of being the *CF* Supreme Champion are about as likely as Big Daddy appearing in a Slim Fast advert.

SIMON FORRESTER AKA, MOUNT FUJIYAMA

We actually had some pictures of Simon in full Sumo Wrestler mode, with the knitting needles through the hair, those strange dangly bits hanging from his belt and more bum cleavage showing than a working men's club full of just-off-the-shift construction workers. But, unfortunately, these were banned from publication by the government worried about their effect on "young people". So the edited, it-could-go-out-on-ITV-at-10.30pm-on-a-Saturday-night version will have to do instead.

OLLIE ALDERTON, ART EDITOR AKA, RAGING GOAT



In the Blue Corner we have the Alderton lad, light turkey-weight champion of the crew. Not much of a feat when you consider both Hairy and Dave are well into the heavyweight category and so Ollie won the title by default. He still fancies his chances against his bulkier rivals, though. "I float like rubber duck and sting like wet towel across the buttocks,"

CONT

WHAT ARE YOU WAITING FOR?

Another month, another packed issue of *Commodore Format* How do we manage it? (Coercion, bribery, begging, all those other things journos are really into.) And what a corker we've got for you – in fact what are you doing reading this bit? Why aren't you ploughing your way through the spectacular graphics feature brought to you by those Apex Boyz? Or scouring the multi-player games feature wondering why you haven't got every single solid gold game we've recommended? Or learning how to get the most out of your C64 with our stunning new Machine Code series? Or playing the brilliant games on the bulging-to-capacity covertape we gave away this month? Go on. Be off with you. You won't regret it. **Dave**

OTHER BITS

6 POWER PACK PAGES

Everything you ever wanted to know about this month's covertape but didn't have time to ask because we've told you what you wanted to know already. On these very pages, in fact.

9 SNIPPETS

Approaching the news food trolley with a very large plate, we take the facts and, because fact into doubt won't go, we turn facts into news. Or something like that.

10 MIGHTY BRAIN

The Supreme Intelligence deigns to answer your queries and even lets a few of you air opinions. He must be going soft in his old age.

13 CAPTAIN STEM'S DATAFILE

Once more the mysterious Captain Stem emerges from the vortex bringing with him games news and sarcastic remarks.

18 PREVIEWS

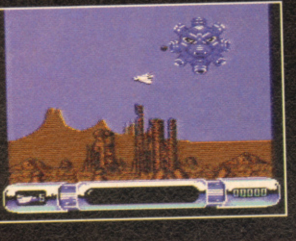
Defensive

Exclusive sneak previews of a few games that are in the pipeline – can you stand the wait?

● *GERM ALERT*
● *DEFENSIVE* ● *DEADLINE*

26 SHOCK TREATMENT

Ever heard of the Electric Boys? No, they're not an Italian disco outfit who released a Eurobeat version of Guns'n'Roses' *Paradise City* last summer. But hopefully this summer they will be releasing some quite significant stuff, because they've got three C64 games currently in development. We ventured into deepest, darkest Surrey to find out who they are and what they're planning to unleash onto the C64 scene. It's good stuff.

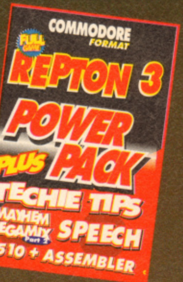


Pretty soon you'll be on the *Defensive.*

Ruse of the Boys.

TENTS

Check out the stunning software we've crammed onto the Power Pack for you this month...

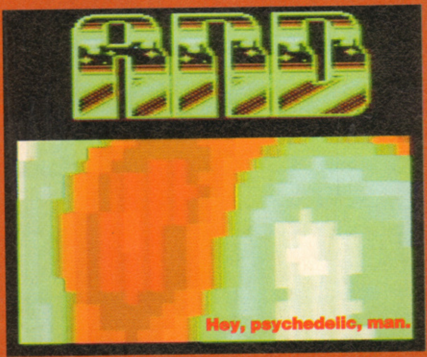


14 HUMAN CONFLICT

Know your enemy – it's much more fun blasting away at someone you know than playing against some soulless computer that just keeps on doing the same predictable thing time and time again. And so that you settle those grudges you've got with your mates in a bit more style than a scrap down the 'rec we've rounded up the very best multi-player games the C64 has to offer – true classics like *Street Fighter 2*, *Ghosthunters* and *Head Over Heels*. So get those joysticks at the ready and prepare to do battle... against some real, live competition for a change.

20 PD FORMAT

If you want to see some of the most spectacular graphics you're ever likely to witness on a C64 then you need to get hold of some demos. Simon takes a look at what's on offer in the PD scene.



Hey, psychedelic, man.

21 MAKING 10TH DAN

So, how's Jon Well's getting along with his beat-'em-up to end all beat-'em-ups?

23 MEAN MACHINE CODE

Because you demanded it! The complete beginners' guide to programming in machine code. Soon you won't be playing the games, you'll be writing them (well, we all have to have ambitions).

28 SECRET OF SEUCKCESS

Discover the way to get complete control over all those little in-game features in *Shoot-'Em-Up Construction Kit*. You know you want to.

31 TECHIE TIPS

Jason Finch proves once again what a really nice person he is by answering all your technical C64 questions. I know I wouldn't do it for love nor money.

34 BUY-A-RAMA

Bargains galore and so much more, in the C64 second-hand superstore. Check it out.

35 BACK ISSUES

They're selling out fast, so if you've got a hole in your collection, fill it now before it's too late.

36 BUT IS IT ART?

Discover how to create the stunning in-game graphics. Those master pixel-painters, the Rowlands Boyz, show you how.

50 NEXT MONTH

Pretty self-explanatory, really

The final level of *Nobby* gets gamebusted.

40 GAMEBUSTERS

For the gameplaying-challenged this month we proudly present:

- *Mayhem* maps and tips for Cherryland
- The final level of *Nobby* blown wide open
- Part one of a *Stormlord* complete solution
- SOS deals with your specific queries

And much, much more (as they say).

POWERPACK PAGES

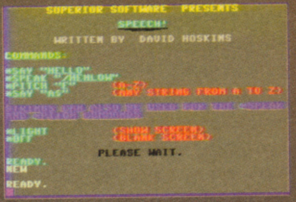
REPTON 3

It's got digging and diamonds, but it's not *Boulderdash*. It stars a miner, but it's not *Manic Miner*. It's got alien eggs that hatch into horrible monsters but it's not *Aliens*. It's *Repton 3* and it's brilliant,

OPTS
CHAR
MAPS
S

SPEECH

The title says it all really. Well, not as much as the program, actually. It's a speech synthesiser, you see.



```
      SUPERIOR SOFTWARE  PRESENTS
               SPEECH!
        WRITTEN BY  DAVID HOSKINS
COMMANDS:
*SAY "HELLO"
*SPEAK "/HEHLOW"
*PITCH "E"          (A-Z)
*SAY "AS"           (ANY STRING FROM A TO Z)
[illegible]
[illegible]
*LIGHT              (SHOW SCREEN)
*OFF                (BLANK SCREEN)
            PLEASE WAIT.
READY.
NEW
READY.
```

MAYHEM MEGA MIX 2

Want to hear dome of the best music you're ever likely to hear on the C64? Then all you've got to do is load up this demo.

demo music
a: high score 2
b: ventoro
c: up the bass
f: multi voice
loading game
game over
o: apex beats
p: beats dub mix
q: mayhem tv
r: mayhem demos

6510+

Top-notch PD assembler.

TECHIE TIPS

All this month's Techie Tips listings lovingly collected together for your pleasure.

Everything you need to know about that thing that was sellotaped to the front of this issue – except for how to get it off without ripping the cover. Simon Forrester is your guide.

POWER PACK

45
COMMODORE FORMAT
FULL GAME
REPTON 3
POWER PLUS PACK
TECHIE TIPS
MAYHEM MEGAMIX Part 2
SPEECH
6510 + ASSEMBLER

SPEECH

"What's in a name? Well, in the case of *Speech* it's a pretty darned good description of the program. A rose is a rose by any other name, except when you get *Speech* to say it, when it comes out something more along the lines of 'roowhz'. Which all goes to prove, er, I'm not really sure, actually. But when all's said and done, *Speech* is a speech synthesis program.

When you load it up, you'll get all the instructions you need. Great. Goody. I'm off home, then. Talk about being out of a job. Actually, don't – it's depressing.

Let's take a look at them there *Speech* commands, then:

- **SAY** – This command makes your C64 say things. If you use the command `*SAY "Howdy"`, your '64 will say, "Howdy" (or something vaguely similar to it, anyway). What more do you need to know? Actually, I think the command SAY pretty much sums it all up. This *Speech* program doesn't believe in cryptic labelling. Next…
- **SPEAK** – Ah. This is where I actually become useful. You people think you're so self-sufficient, but you'd be nothing without me. Nothing. Dust. Y'see while the SAY command can pronounce a lot of words that you type in fairly correctly, it's not extremely intelligent and there are some things it gets all tongue-tied because it's trying to pronounce them phonetically.

I'm going to have to explain all about phonemes at this point, aren't I? They're the small sections of speech that make up spoken language, such as uh, gah, goh, fi, fi, foh, fum. Get the picture?

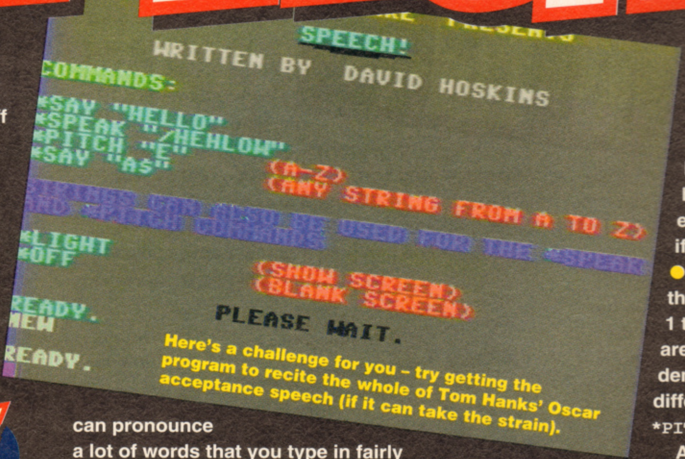
The SAY command takes what you typed in, breaks it down into phonemes and then says those phonemes in the correct order. Sometimes this works okay, sometimes it doesn't, because the program's phoneme dictionary is fairly limited and cannot work out when, say, when ough should be pronounced uff as in rough or ow as in bough.

That's where the SPEAK command comes in handy. The SPEAK command bypasses the phoneme dictionary and only says exactly what is typed in on screen. In other words you have to spell out the word phonetically – Simon would need to be spelt something like 'Sieymuhn' to get a good result.

Other examples of differences would be in situations where the letters 'Mr' are used – the SAY command comes up with 'mister', but the SPEAK command utters 'muhr', whatever that is. The key here is experimentation – you might have to give a word a few tries before you get it sounding exactly how you want (especially if you come from Newcastle).

- **PITCH** – Nice one, this. You use the command with a number from 1 to 20, to set the pitch the words are spoken at. If you want a direct demonstration of this, listen to the difference between speech after `*PITCH 20` and `*PITCH 1`.

And that's it. If anyone comes up with a truly stunning and original use for this package, write in and let us know. But please, no complete anthology of Morrisey and Smiths lyrics – I don't think we could handle that."



```
                 SPEECH!
        WRITTEN BY  DAVID HOSKINS
COMMANDS:
*SAY "HELLO"
*SPEAK "/HEHLOW"
*PITCH "E"
*SAY "A$"
                    (A-Z)
                    (ANY STRING FROM A TO Z)
[illegible] CAN ALSO BE USED FOR THE *SPEAK
AND *PITCH COMMANDS
*LIGHT
*OFF
                    (SHOW SCREEN)
                    (BLANK SCREEN)
READY.
NEW
           PLEASE WAIT.
READY.
```

Here's a challenge for you – try getting the program to recite the whole of Tom Hanks' Oscar acceptance speech (if it can take the strain).

NO LOAD ZONE

SIDE 2
CF
POWERPACK
tape

If you're having a hard time loading this month's Power Pack then plonk the duff tape in a jiffy bag, slip in a tape-sized SAE, seal it up and send it to:

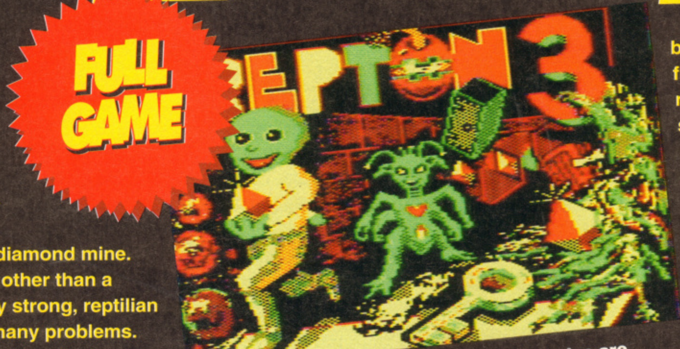
*CF*45 Tape Replacement Service, Ablex Audio Video Ltd.,
Harcourt Halesfield 14,
Telford, Shropshire. TF7 4QD.

QUICKSTART INFO

*SAY "Words n fings"...Say something
*SPEAK "Wugahum"..............Phonetic
*PITCH 20 ....Changes pitch.

Other Info Keep the pitch at about 10 and practise using the phonetic system.

REPTON 3



If the keys are all that big, then the keyholes are probably large enough to crawl through anyway.

It's here! It's one of the all-time classics that moulded the industry today. It's one of the original *Boulderdash*-style games. First programmed on the BBC Model B, the game's sheer excellence soon escaped from that old dinosaur and out onto other superior formats (like the C64). And so, we are proud to present from Superior Software, *Repton 3* – the bitch is back.

Imagine it – your very own diamond mine. Sure, you've got no equipment other than a pickaxe but, being an incredibly strong, reptilian fing, that shouldn't cause too many problems.

The game takes place in a series of mine shafts, containing with ancient walls, huge boulders, equally massive diamonds and the eggs of quite a few incredibly dangerous creatures. Above all, though, there's dirt. Loads of dirt. More dirt than a copy of thew Sun. You spend your entire life digging through dirt. Digging. Dirt. Digging. Life's dull...

And so, just in time to liven things up before you give up completely and resign yourself to a life watching *Neighbours* instead a terrifying alien arrives on the scene – an egg hatches to reveal a huge, green, flesh-eating ghoulie intent on more than saying, 'hi' and shaking you by the hand. Hard.

Okay – you've just loaded it up. Can you see that blokey on the screen? That's you, that is. Well, for the course of the game it is, anyway, I'm not getting personal. Can you see any boulders yet? They're the huge round lumps of rock suspended on pieces of dirt. If you mine away that dirt (simply walk through it), the boulder will fall. Don't worry, though – you can hold a boulder up if you were standing directly beneath it when you mined away the dirt supporting it, but if it falls any distance onto you, your flattened corpse will probably be discovered in a few years time by some poor, unsuspecting colonial marine.

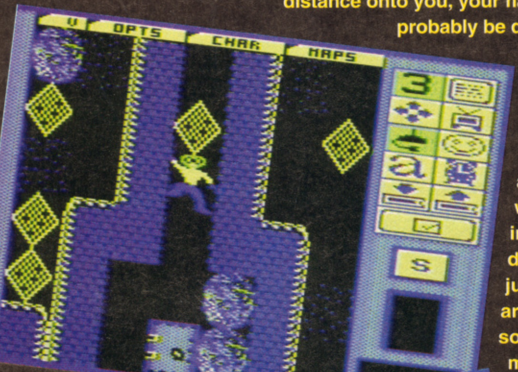
You'll have found out by now that there are also a few brick walls about that are impervious to your digging skills – you'll just have to move around them. There's something else you might be interested in, though – diamonds. You'll be able to spot these easily, as they're huge, yellow and diamond-shaped. Unlike boulders, they won't fall if they're unsupported. They won't kill you, either – they'll just make you rich. Rich, you hear?

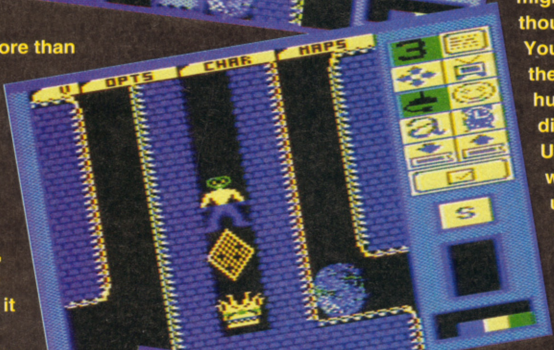
These boulders are unstable things, you know. First, they'll quite happily roll straight off anything with a vaguely curved surface, so beware. You'll spend quite a lot of time being crushed under massive lumps of rock at first, until you get used to the speed that rocks fall (sometimes they're too fast to see). You can push rocks along flat surfaces, but you can't push a train of rocks (only one at a time, folks).

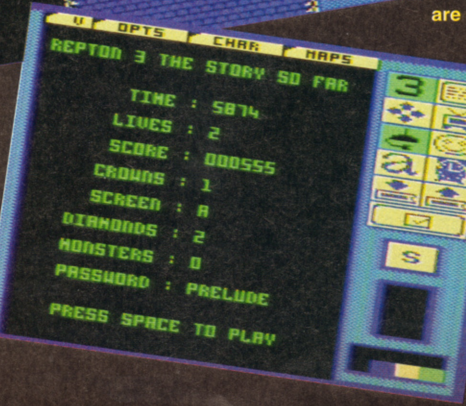
A few more things – you'll find safes, which you can open using the keys that you'll also find littered around the place. If you come across cages, don't worry – these are your friends (life must be dull). At certain points in the game, you'll find little blue whizzy things. These are spirits that'll stay trapped in the cages if they come into contact with them. If they come into contact with you, though, you're dead.

All this and so much more – you'll find teleporters, instant death skulls and a few other bits and pieces that I don't feel like telling you about; you can find out for yourselves (it more fun that way).

I know what you're thinking – there's a level editor hanging off the back of this game, isn't there? (*Only if they're psychic – Dave.*) Yes, there is. We'll be covering that in a later issue, along with tips on how to write your own challenging levels.







```
REPTON 3 THE STORY SO FAR

  TIME : 5874
 LIVES : 2
 SCORE : 000555
CROWNS : 1
SCREEN : A
DIAMONDS : 2
MONSTERS : 0
PASSWORD : PRELUDE

PRESS SPACE TO PLAY
```

Eeeh, it's a toof liyuf down t'pit. Specshly when thar's alyens down thar and yuv got a speech impediment.

QUICKSTART INFO

UP	Up.
LEFT	Left.
RIGHT	Right.
DOWN	Down.

Other Info Get used to the different arrangements of rocks and the movement of bad guys.

Tape to disk

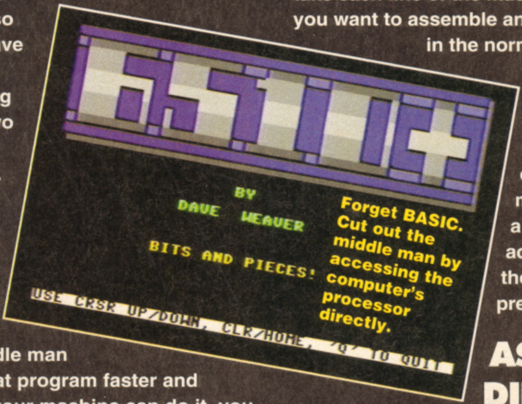
If you're lucky enough to own a disk drive and want to use it as well as admire it, then you can get hold of this month's Power Pack on disk. Simply cut out the token on the tape inlay card, write your name and full address on a piece of paper, pop 'em in an envelope with a cheque or postal order, made out to Ablex Audio Video, for £1.50 (to cover duplication costs) and send it to:

CF 45 Tape To Disk
Ablex Audio Video Ltd.
Harcourt Halesfield 14
Telford
Shrops. TF7 4QD.

6510+

Unlock the true programming power of your C64 with this excellent machine language assembler.

An assembler, for all those who haven't been following Dr Finch's Casebook, is a program that takes your assembly language instructions and turns them into a machine code program that your C64's processor (big chip) can understand. BASIC, essentially, is just a machine code program, you see, so BASIC programs have got to be run by a program that's being run on the chip – two programs to do the job of one, in effect. This is slow. Programming in machine code means you're running one program directly, cutting out the middle man (BASIC), making that program faster and more powerful – if your machine can do it, you can make it do it in machine code.



Forget BASIC. Cut out the middle man by accessing the computer's processor directly.

You think you don't need this? Every arcade game that's ever been given a good mark has been written in machine code – BASIC just can't cut it. You still need to know how to use this program, though, don't you?

Right – the program you'll find on the disc will install a copy of *6510+* on the tape or disc of your choice. The package itself is way too complex to go into here, but anyone who's been coding for any amount of time will already know exactly how to use it.

What if you're a beginner? Well I can't explain how to program in machine code here (there's a new feature starting on page 23 that does all that stuff), but I can explain how this assembler works, so you'll be able to use it with the various excellent technical features *CF* has.

Your listing is written in the form of a BASIC program using mnemonics as opposed to normal BASIC commands, that 6510+ will take and assemble; in other words, when you take each line of the machine language listing you want to assemble and give it a line number in the normal BASIC way.

After the actual assembly instruction (that's the bit that Jason will teach you over the next six months), you can place a comment which will act like a REM statement, though it will have to be preceded with a ';' or a '!'.

ASSEMBLY DIRECTIVES

Not all commands have to mnemonics, by the way – there are some directives that, instead of assembling into real instructions, give the assembler itself specific instructions (if you're new to assembly language most of most make much sense yet, but it will soon if you carry on reading the Mean Machine series):

`BYT` – This is used to place bytes directly into memory. The correct format for this command would be something like `BYT 57,38,53`, which would place the bytes 57, 38 and 53 consecutively. By the same token, you can give the command a text string and the assembler will place the ASCII values of each character into memory instead.

`TXT` – This is the same as `BYT`, but you can use it if you're used to that command instead (some people prefer it that way apparently)

`WOR` – This one places a two-byte word into memory. The command `WOR $1234` would place the bytes $34 and $12 consecutively in memory.

`END` – This command is used to indicate the last line of source code.

`CHN` – You can also use `LNK`, as both commands are used to chain two source files together; if you used `CHN "filename"`, the assembler would switch to the new source file to continue assembly. Bear in mind that all chained files must end with an `END` directive.

`LIB` – This is very similar to `CHN`, but allows you to insert a chunk of source code from elsewhere into your listing. This command doesn't so much switch files as paste another one in.

ASSEMBLE IT, THEN

When you've finished your program, you'll want to assemble it, won't you. The easy way to do this is with the ASSEMBLE command, that doesn't need any other parameters. If you'd like to start assembly from a particular line number, though, you can state that line number (ASSEMBLE 50) and *6510+* will happily oblige.

One point – *6510+* modifies a few other BASIC commands in order that it can work properly. While this is great and everything, it does mean that some normal BASIC programs may not work with the assembler in memory. You have been warned – steer clear of running normal BASIC programs with *6510+*

6510+ IDIOT'S GUIDE

We're going to use a program from Mean Machine Code, the tutorial series that starts this month on page 23. The listing can be found under the heading 'Hands on time' within the feature, and here's how we'd use it with 6510+.

1 Load 6510+

2 Enter the following program in BASIC:

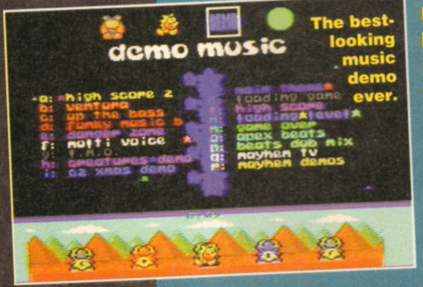
```
10 LDA #$00
20 STA $D020
30 RTS
```

3 Type the command ASSEMBLE.

4 There we go. All done. Easy, wasn't it?

MAYHEM MEGAMIX

More melodic mayhem from the master mixers John and Steve Rowlands. Sit back and listen to some of the grooviest games music in the history of history, all of 'em from Apex games, including *Creatures*, *Creatures 2* and *Mayhem in Monsterland*.



The best-looking music demo ever.

And it's all wrapped up in one of the best-looking option screens you're ever likely to see. Just hit the function keys to select what game you want and then hit the letter corresponding to the tune that you want to hear. To start and stop the music (plus a few other effects) use the Mayhem cursor at the bottom of the screen, which is controlled by your joystick. Then sit back and enjoy.

QUICKSTART INFO

F1-F7	Select game.
A-Z	Select tune.
JOYSTICK	Move Mayhem.

Other Info You select the various functions (play, stop, etc) by moving Mayhem over the monsters at the bottom of the screen and pressing fire to select. It's got to be one of the best-looking control systems we've ever seen.

SNIPPETS

Summer's coming, the geese are getting thin, so's the news, but here's what we managed to find anyway...

SUPPORT YOUR C64

We've just received news of a brand spanking new fanzine called simply *Sixty Four*. It plans to cover all kinds of C64-related bits and pieces, including programming courses for novices and experts, previews, reviews, and lots of other stuff.

For more information on this new burst of major media support, just write to LS Bebbington, 348 Station Road, Winsford, Cheshire, CW7 3DG.

The 'zine will also be running a campaign for getting C64 software back in the shops. This is why with every copy, you'll receive a form to fill in and send to the software house of your choice, hassling them to produce more software for your machine. Yes.

ON THE TRAIL

Following their brief appearance in last month's news pages, up and coming indie softie Parallel Logic have just announced the release of *The Venus Trail*, a text adventure with a bit of a difference which is due for release any day now.

What's the difference? A shoot-'em-up sub level, that's what. Written on *SEUCK*, it's designed to attract action fans to the way of the text adventure game. Sounds pretty scary, huh?

The team are also putting the finishing touches to *Util 1541*, a package that regrettably we couldn't bring you a review of this month. Fear not, though – next month will see the full review in these pages. (I know what you're thinking – *Util 1541* has been around for a little while. This is V2.0, the machine code version, you see, so it'll be faster, more powerful, and more beautiful.)

For more info, you can write to 40 Windsor Avenue, Whitehead, County Antrim, Northern Ireland, BT38 9RX, contacting either Colin McMaster or Philip Boyce, and I'm sure they'll be happy to help you out (or the duck will).

SAVE THE TREE, MAN

We can hack down their homes for a start.

Being in the business of wasting huge amounts of paper each month by printing magazines, we thought you might like to know that we take the whole thing very seriously indeed. *Commodore Format* is now printed on paper from managed forests, meaning that for every tree we hack down to review a PD collection or whatever, another tree is planted in its place, ready to grow old and get needlessly hacked down again for another magazine in the future.

Also, to stop huge amounts of damage to the ozone layer, rare and interesting plant life and huge mud mountains in Canada, the magazine you're holding at the minute is printed on ECF paper. The ECF bit stands for Elemental Chlorine Free, as we don't bleach the paper with chlorine. The down side to this is that you can no longer clean your swimming pool with the mag once you've finished reading it, but we hear that the massively environmentally damaging covertapes are pretty good for that.

DEDICATED FOLLOWER OF FASHION

Are you tired of dull T-shirt designs? Do you want to wear your own interesting designs for a very low price? A company called Quill Marketing may have the answer – iron-on print outs. If you have a computer, a printer and an iron, you can create designs that Jean-Paul French-person-whose-name-we-couldn't-spell would kill for.

The pack includes sheets of paper. That's right. It's special paper, though – when you print a design onto it, you can iron the design onto any piece of fabric (it helps if it's cotton-based, but polyester's horrible anyway), and have your very own handsome colour washable T-shirt.

The packs will soon be available through most computer retail outlets, and will cover a wide range of printer types, from inkjet, thermal and laser printers, right through to dot-matrix printers. So you too could look like the people in this photo, lead a normal and balanced life, and wear T-shirts denoting your interest in sports to demonstrate that you're bloody perfect. Gah!

Sorry, but pictures like this really make me want to yak.

Hole in 1
School Team

YOUR CHANCE TO SHINE

If you're up to anything the world ought to know about, then why not write to Snippets at the address, on the back page and it could be you we're poking fun at.

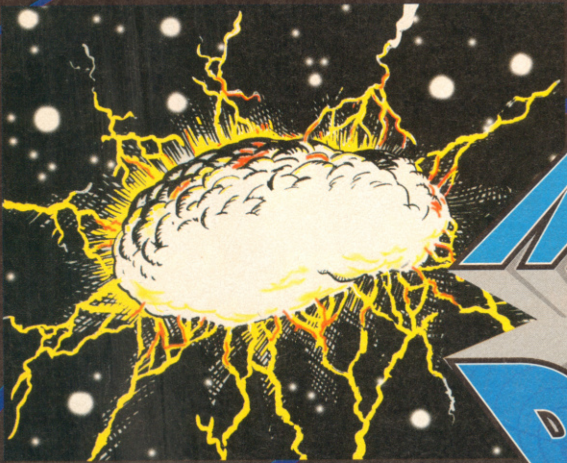
Of course you can send 2 x First Class stamps, and we'll send you our Shareware PD & GEOS catalogues but at Shareware PLUS we're pleased with our quick delivery record. To demonstrate our efficiency we've got a special offer for you ... Just send us £1 (a pound coin, a cheque or a postal order) and choose any one subject disk below.

GEOS 1 GAMES EDUCATION UTILITY MUSIC C128 GEOS 2 FINANCE

If you like, order one of each disk at just £1 per disk, we won't mind. We'll rush you your order along with our PD, Shareware & GEOS catalogues.

SHAREWARE PLUS
Fulfilment Centre, 66 High Street,
Pershore, Worcestershire WR10 1DU

Outside UK - Please add £1 per order for Airmail postage.



THE MIGHTY BRAIN

When the definitive history of the universe comes to be written, there will a whole chapter devoted to the Mighty Brain (and you never know, his work as letters editor on might just make it in as a foot note).

THE AFFORDABLE CHOICE

Dear TMB,

I am a proud C64 owner but I also have a Megadrive. It won't surprise you to hear that I buy more C64 games as they are far cheaper.

Anyway, I have a few questions for you plus a couple of suggestions. Here goes:

1 You said you might get *Head Over Heels* for the covertape. Please put it on as I was going to buy it anyway.

2 Does the Action Replay a) make tape games load quicker and b) find cheats for most games with its Cheatfinder?

3 Why don't you make a special section of the magazine to do some in-depth reviews of old or classic games?

4 You said you might do a feature called Diary of a Game, but you criticise *Commodore Force* for not being original and copying you. Guess who did a Diary Of A Game feature about a year ago with Jon Wells? I bet you won't print this letter now that I've said that.

5 My Dad can't get past one of the Skulz in *Skulz*.

6 Why don't you ever change the Mighty Barometer?

7 I think *Football Manager World Cup Edition* should be low pressure while *Saint Dragon* should be high pressure.

9 If I give you the money will you get me *Sleepwalker*?

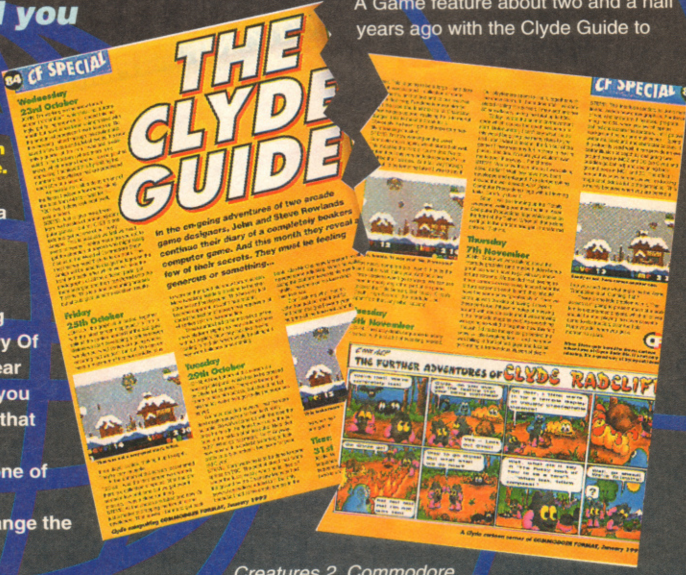
David Connolly, Woodstock.

1 We can't make any promises about *Head Over Heels* yet, so now you're faced with a moral dilemma – do you buy it or not? Wouldn't life be dull if we knew all the answers? Ah, don't get me onto that subject.

2 a) Nope. Cassettes have this annoying habit of only playing at one speed. b) Yes. Just (if you take the meaning of most as over half – there are a lot of games it really can't fathom out, but it tries its best).

3 Convince us it'd be a good idea.

4 Hold on just one nanosecond there, boy. We were the first with a Diary Of A Game feature about two and a half years ago with the Clyde Guide to *Creatures 2*. *Commodore Format* is, always has been, and always will be the most original-thinking C64 mag.



Proof – we were the first with a diary of a game feature.

CF SPECIAL

THE CLYDE GUIDE

In the on-going adventures of two arcade game designers, John and Steve Rowlands continue their diary of a completely bonkers computer game. And this month they reveal a few of their secrets. They must be feeling generous or something...

Wednesday 23rd October

Friday 25th October

Tuesday 29th October

Thursday 7th November

THE FURTHER ADVENTURES OF CLYDE RADCLIF

5 A main function of fathers in this Earth society of your is, I feel, to be completely useless at things their children find ridiculously easy.

6 We do. It just needs a tap occasionally.

7 I decide what goes where.

8 No. What do you think I am? A mail order catalogue? **TMB**

READER SURVEY REVEALS SHOCK RESULTS

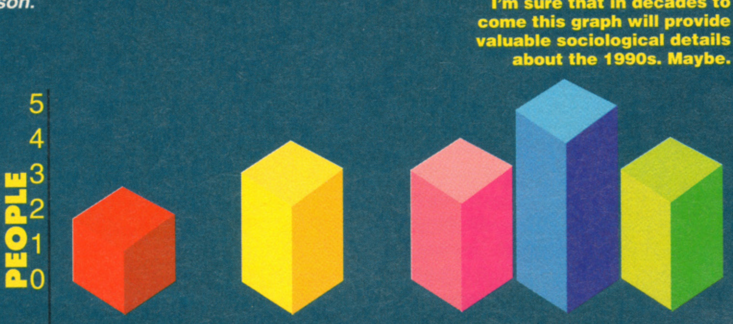
Dear TMB,

I really enjoy reading your magazine and playing the games. The first issue I bough was *CF*18. The best game I think you have had on the Power Pack is *ATA*, the block game.

I have sent you a graph of people who ask to play on my C64 when they have game consoles. So keep up the good work, guys.

Michael Williamson.

I'm sure that in decades to come this graph will provide valuable sociological details about the 1990s. Maybe.



These console owners, they're so fickle, aren't they?. Especially on Saturdays. I've long suspected as much and now your graph proves it (I'm not being too patronising, am I?). **TMB**

READER'S TOP 10

1. Wizball
2. Trolls
3. Captain Blood
4. First Samurai
5. Space Gun
6. Ghouls and Ghosts
7. Ghosts and Goblins
8. Slayer
9. Salamanda
10. Io

Rowan Veale, Blairgowrie

WONDERFUL WORLD OF COMMODORE

LETTER of the MONTH

Dear TMB,
Did you know that Commodore Germany has sold 100 C65's even though they are not 100 per cent finished. Also the C64 isn't dead! It is just the UK being lazy and software houses being money-minded.

Proof: Poland has many new games being released from its main software house, Lkavalon. Germany has loads of games released every week from Markt and Techik and CP Verlag. Also, there is software coming from Australia and the USA, but the problem is getting hold of it here in the UK.

This is when I thought of a cool idea. Why don't you write to them and be their UK importer? Even if you don't like the idea you can still fill your pages up with game reviews.
R Marshall, Great Yarmouth.

Unfortunately *Commodore Format* isn't quite in a position to move into the importing business at the moment, but Dave is already on the case as far as contacting those European software companies you mentioned goes. And with *CF* coverage, who knows – a UK distributor could well become interested. **TMB**

TRY, TRY AGAIN

Dear TMB,
This is the 6,000,000th time I have written to you, blah, blah, blah, kill myself, blah, blah, blah, tell Simon to duff you up, blah, blah, blah, oh sorry, I lapsed into 'begging to get on TMB's page' syndrome. Anyway...
1 In *CF*43 you told Arnold Raviel that the answer to the riddle in *Bard's Tale 3* is DEATH. It is, however, SWORD as I have *Bard's Tale 3*. Just wanted to point that out.
2 Please can you thank Hutch for advising me to write to Sophie in *CF*43's Pen Pals section of Uncle Dave's Buy-A-Rama. I have written to her.
3 How many things can you think of to do with a large club, an LP of 101 Australian soap opera themes, a two-year old tube of foot corn cream and one whingy console owner? I've clocked up 39.
4 Do you watch *Ren and Stimpy*?
5 Where do I write to join the Lisa fan club?
999 I enclosed a tape of a single released with a computer game for the Dragon 32k. The original song comes on the same tape as *Pimania*. I think it's great, strange but good.
Yours bog-standardly,
Graeme Murgatroyd, St Albans.

1 Okay, the gaff has, as they say, been blown (though even with my IQ of infinity I've never been able to work out what that means). I was on holiday in the Crab Nebula for *CF*43 and so an impostor stepped in for that issue who only had an IQ in the low 300s. But I'm not saying who.
2 Hutch is well and truly thanked. By the way, tell us if it leads to marriage.
3 That depends on what kind of large club you mean. If you mean a large club like Liverpool FC then it's 2,936, but if you mean a large club as in a big stick, then it falls to a mere 1,092.
4 No. I once appeared in it, though.
5 Try *PCW Plus*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW.
999 Put it this way. We're not going to put it on the Power Pack. **TMB**

BATTERED BLUE BOX

Dear Terribly Mutilated Blimp,
1 Why does Dave like *Doctor Who*? It's completely rubbish.
2 Do Mighty Brains have birthdays?
3 Do you get fed up with letters asking you what the crew's favourite games are?
4 Will the Rowlands be writing any more games for the C64?
5 What are the crew's favourite ga... gasses? Bet I had you going there.
6 Is it just me or is *Sleepwalker* an underrated, forgotten classic?
Charles Cleary, Ludlow.

1 It's some deep-rooted psychological problem.
2 Our home planet has an orbit the equivalent of 567 years and 232 days in your terms. This makes waiting for a 'birthday', a bit dull. We celebrate other things your human minds could not contemplate.
3 No, we love mouthing (or in my case telepathing) off our opinions, so we appreciate any opportunity we're given.
4 Unfortunately, it seems unlikely.
5 Dave – the stuff that makes lemonade go fizzy.
Ollie – laughing gas.
Simon – helium.
TMB – Arcton 7 (you haven't discovered it yet).
6 Here at *CF*, we didn't underrate it. We gave it 90 per cent. But yes, it could do with a bit more recognition. **TMB**

Tempest 2000 – what Jeff Minter did next.

FAD GADGETS

Dear TMB,
I disagree with John Rowlands, consoles aren't a fad. They're here to stay and develop. It's the consoles that started the media attention in the industry as they are just simple concepts (just plug in and go) and therefore appeal to the masses. If companies want to have multimedia in every home then consoles will be a big part of it. Keyboards will be sold as peripherals for the enthusiast; home computing (the dream of the 80s) will take a back seat. Funny, I remember an old computer magazine predicting the demise of home computing when the first consoles appeared. It's a sad fact, but true.

The fact that most console games are unoriginal conversions from other formats or rehashed 8-bit classic is irrelevant. The console kids wouldn't know anyway. But those of us that played the original computer games can sit back with a smug, knowing grin. It's a shame fewer kids will learn the benefits of home computing...

Now excuse me while I go off at a tangent for a moment, but is it just me, or is *CF* reading more like *Your Sinclair* these days? No bad thing, but don't let things go too far.

Couple of ideas: Jeff Minter. You did a Minterview a while ago, but how about a complete Mintography? It could detail all his releases on all formats and what he's up to now (*Tempest 2000* on the Jaguar, but what else?). You could do Andrew Braybrook and Novagen too. But don't do the Rowlands (no offence) – they're good, but they've been in *CF* month in month out for ages now.

You could also cover the C64/65 scene in Europe and the US. Or how about tracking down the oldest C64 game? Maybe readers could send in the names of their oldest games (mine are *Matrix* and *Attack Of the Mutant Camels* by Jeff Minter from 1983 and *Motor Mania* from 1982).

Anyway, congratulations, after 42 issues you've finally expelled that Frames freak.
Benson, Hatfield.

I'm not convinced that home computing will take a back seat to consoles – it has never happened on any other planet. What will happen is that the two things will diverge. In the early 80s if you wanted to play computer games at home you had to buy a computer (unless you went for one of those dreadful Binatone things); only a minority of people who bought them would actually use them as home computers. The difference now is that people have the choice of games-only machines, but there will always be a large number of people interested in real home computing. How else would you explain the recent explosion in the PC leisure magazines sector?

Strange you should mention *Your Sinclair*, since erstwhile *CF* editor Hutch did indeed also edit that magazine once. The latest incumbent in the post, Dave, used to work on *The Whitstable Times*. Births, deaths and marriages column, anyone? **TMB**

BONK THE GONK

Dear TMB,
I would like to air my views on the decline of the consoles, a situation denied by a certain Brainless Gonk in *CF*43. Notice how both you

➤

and Gonk use the names SNES and Megadrive. What happened to the NES and the Master System? They didn't last long, did they? My brother got a NES for Christmas a couple of years ago and got several games with it. The games had good graphics and more colours than the C64 but they were all completed by February. He never uses it now. The last time I saw him use it was for five minutes last July. It just gathers dust.

Contrast, five years ago I was given a C64. It immediately replaced my ZX Spectrum and I have used it ever since, and will do for years to come. Why? It's the correct definition of a computer. I was so attracted to it, that when my original C64 died I went out and bought a new one straight away.

One last thing – console owners probably think we're a bunch of old fogies attempting to keep the old days alive. We're trying to keep a real computer alive and besides I'm only 14.
Paul Cresham, Swindon.
PS For the record, Commodore lovers are not braindead. When I was 11 my IQ was 147 and is now approximately 158, making me an official genius. Thank you.

While your argument might not stand up in a court of law (NESes and Master Systems are still very much alive and are still being sold in high street stores; the C64 is not – sad but true) in essence you are spot on. History will show that the C64 was a far more enduring piece of equipment than those other rather scrappy little machines. And if the SNES and the Megadrive do manage to outlive the C64, it proves nothing about the quality of any of the machines. We know which is the superior machine, and that's what counts. **TMB**

BITS'N'PIECES

● I am writing to ask if there is anywhere where I can get *Lemmings* (on disk) for my C64? I have been everywhere I know to find it ever since you reviewed it.
Chris Wozencroft, Peterborough.

I know there's a shop on the third moon of the planet Gargetua IV that's got a couple of copies it needs to shift (for intergalactic tax reason). If that's a bit out of your way get a shop to order it for you direct from Psygnosis. **TMB**

● I am not happy about the shops here in Guernsey because they do not stock C64 games. What can I do?
Mystery Person, Guernsey.

Move. **TMB**

● In *CF*42 Tommy Sanders asked, "Is there any chance of a sideways scrolling *SEUCK* game coming out?" Yes – just turn your monitor and your joystick 90 degrees to the right.
Lee Johnson, Huddersfield.

That's what I like - lateral thinking. Your next step should be fourth dimensional thinking – I find it most useful for working out bus timetables. **TMB**

● Where can I find *Time Warrior*?
Tony Beveridge, New South Wales, Australia.

THE TIME WARRIOR
DOCTOR WHO
U

Available from all good video shops...

Dave assures me that BBC Video have indeed released that fine *Doctor Who* story in Australia, so I suggest you look in your local video shop. It was that *Time Warrior* you were referring to? **TMB**

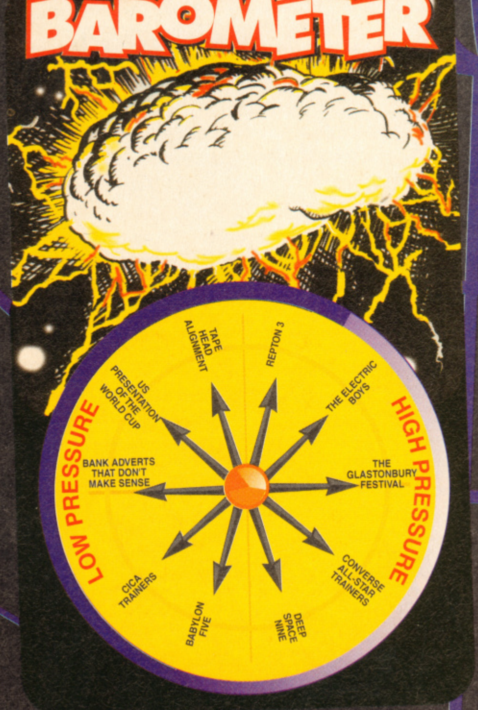
● In *CF*43 there was a section on how to clean your C64. It showed a picture on how to clean up your tape datasette. There wasn't a lid on it. Was it broken off?
Himesh Kathrecha, London.

No, it was removed in a delicate operation under expert guidance. Well, that's the official reason that Dave's allowing me to print, anyway. It really had nothing to do with being used as high velocity projectile. Honest. **TMB**

● Could you please tell me who markets GEOS applications?
Gerard Entwistle, Lancashire

Try Software Plus, Fulfilment Centre, 66 High Street, Pershore and Kingsway Computer Services, 72 Glencoe Road, Sheffield S2 2SR. **TMB**

THE MIGHTY BAROMETER



100 PER CENT

Dear oh so Mighty Brain (grovel, grovel, grovel, slurp, slurp, slurp, etc, etc, etc),
1 I have got to the maggot machine in *Exile*. Have you got as far as that?
2 How the flippin' hell do you destroy it (if you know of course)?
3 What is the atomic number of Uranium? personally it's my favourite element and it tastes nice as well.
4 Were you forced at gun-point to do this job?
5 When I read the computer maintenance pages in *CF*43 I noticed that you need some pure alcohol or some vodka. But my mum thinks that you cannot buy pure alcohol in the shops? Is this true?
6 How long has the C64 been running as a home computer?
Tim Smardon (14), Bristol.

1 What do you think?
2 Are you doubting my powers?
3 92. And, like most right-thinking sentient lifeforms, I think it tastes absolutely foul.
4 I fear no fire-arms. In fact, I fear nothing. Except... ah, but that would be telling. No, I am doing this job purely for research purposes.
5 It's certainly illegal for you to be sold alcohol. You certainly shouldn't be able to buy any sort of alcohol at your age. But places like Boots do sell things like methylated spirits which do the job fine, so give that a go (though be careful, okay?).
6 Well over a decade now. It's about time someone turned it off. **TMB**

PS OF THE MONTH

Please print this letter cos if you don't I'm going to buy a Megadrive.
Ben Hawes, Milton Keynes.

Your loss. **TMB**

ADIOS AMIGOS

That just about wraps it up for this month except to say to Richard Herberger of Wotton-Under-Edge, sorry, you lost the bet. You can't say that about Lisa and expect us to print your letter.

But if any of the rest of you have something you'd like to share with the world, write to me, The Mighty Brain, here at *Commodore Format*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW. And remember, more people live in terraced houses in the UK than in telephone boxes, but that still doesn't make it right.

CAPTAIN STEM

Stardate: June 1994. This is the Captain's log. I have exited at this junction on the time highway once more to deliver CF readers the game news for which they hunger...

Greetings. Once again I emerge from the time vortex to introduce another jam-packed game section featuring the very best of the past, present and future of the C64 games scene.

As you will see from the previews pages (18 and 22) the game explosion reported last issue continues to have aftershocks – yet more new games have been announced, and from the screenshots we've seen so far, the could be pretty impressive (I must pop forward a few time envelopes and check them out when I get a chance). We also have an interview with The Electric Boys, a new C64 dedicated company that has got some really big plans. And I mean big as in really, hugely big, and not big as in, "big savings at your local Texas store".

And don't forget the second part of *Making 10th Dan.* Jon Wells reckons he can produce the greatest C64 beat-'em-up ever. Discover how his ambitions are shaping up on page 21.

Though I am a loner by nature, even I recognise the primeval attraction of a really good multiplayer game. So don't miss out on our special Human Conflict round-up if you want to know which games offer the ultimate head-to-head experiences.

Defensive is previewed on page 18.

PLAIN SPEAKING

Welcome to the Captain Stem guide to computer industry jargon – what they say and what they mean. This month we interpret the what games reviews really mean:

- "You'll like it if you like this sort of game" – it''s a flight sim.
- "Waggle-frenzy" – sports sim.
- "Worthy" – it looks like the programmer's spent ages on it, but God it's dull (see flight sims).
- "Cartoon-style graphics" – huge wodges of primary colour.
- "Visually stunning" – in a minute I'm going to mention how crap the gameplay is.
- "Great two-player mode" – the office ground to a halt for three days.
- "Innovative" – it isn't written in SEUCK.
- "Addictive gameplay" – okay, the grabs look cack but give it a go.
- "Faithful arcade conversion" – who do I think I'm kidding?

WHERE WILL THEY BE?

Once gain Stem voyages through the billowing bed clothes of time to bring you a 'Where Are They Now?' feature with a difference – he tells you where they're going to be. This month's featured victim is everybody's favourite quiche ingredient, Dizzy.

- After appearing in his final 8-bit game, *Crystal Kingdom Dizzy*, the ovoid one took a jaunt across the Atlantic to try his luck as a console star ("boo, hiss, traitor" – go one half of the *CF* readership) ("let 'em have 'im" – say the other half).
- It was not a success. Like the silent stars who couldn't make it to the talkies, Dizzy was dismissed by the console crowd. His simple shape and primary colours, with not a hint of shading or anything else that might suggest he might be three dimensional, just didn't show those Nintendo graphics off in their best light.
- After this he tried to revive a flagging career by planing himself into an octagon and trying to pass himself off as a vector graphic spaceship in a virtual reality game. It was a failure.
- The tragedy was that after this self-mutilation, he couldn't even get the kind of jobs usually associated with eggs – Easter egg moulds, stand-ins for Right Said Fred, that sort of thing.
- But finally, the big break came. Literally. In 2034 Dizzy's scrambled remained were given a ritual burial – on toast with marmite.

CROSSWORD FORMAT

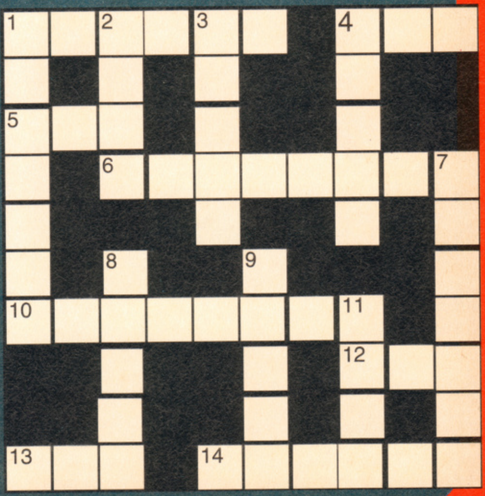
Across

1 This character starred in the all-time top-scoring game in *CF*.
4 The film company that released all three Alien films.
5 USA basketball association
6 Ocean's budget label
10 Rufus isn't a very careful character.
12 Goes before Ski Sim, Boxing Sim and Power Sim (all from Codemasters, which is a big enough clue in itself).
13 Space (_ _ _) Ship – one word completes both games.
14 A racing game that takes its name from the mess oil makes.

Down

1 You look at one of these every time you play a C64 game.
2 Slang for 'Yes'.
3 A vector graphic space game that's the cream of the cream.
4 People debate things in one.
7 Dungeons and _ _ _ _ _ _ _.
8 Parent company of The Hit Squad
9 Once you get past the guardian you can go onto the next one.
11 Short for specification.

Answers on page 50



KNOW YOUR ENEMY

Who says computer games are antisocial? Some of the best silicon action you can get is in two-player mode. Simon calls over a few mates, plugs in a second joystick and checks out what the C64 has to offer the social gamer...

Ever since the video game industry began, developers have worked endlessly on ways to make your computer game opponents smarter. Stating with computer chess and carrying on from there, programmers have dedicated massive amounts of time to creating algorithms to try to out-think the player. Of course, being human, the player has always been one step ahead – until someone creates true artificial intelligence, we can never be outsmarted repeatedly by a mere program (unless you're Dave).

The reason you're so soundly thrashed at computer chess is not because your C64 is especially clever, but because it's been given a whole library of strategies and moves, created by an especially clever chess master. The problem is that it'll do pretty much the same move every time it meets a certain situation; once you've worked out its system, you've got it licked, just like you learn how to beat an end-of-level baddie in shoot-'em-up by learning its movements.

So once you've beaten the computer once, that's it. No more challenge. Your computer can never learn and apply new strategies, just as it's not capable of independent thought. So, now you've proved your superiority at chess, where do you go from there?

The answer is simple – if your computer can't learn, find someone who can and play chess with them instead. Chess isn't the only game in the world, though – if you're bored with shoot-'em-ups, wouldn't it be nice to be ambushed by a particularly cunning enemy? If you would, there's only one way to do it – get someone else to play alongside you. And lo, there were multi-player games.

TAKE YOUR TURN

There are two main types of multi-player games: sequential or simultaneous. If you've ever played the original two-player *Space Invaders*-type games, you'll know what a sequential arrangement is – you're up, grabbing as many points as you can until you die, at which point the second player takes the joystick and tries to top your efforts. These are all very well, but the ships you're up against are still stupid, aren't they?

Simultaneous multi-player arrangements are where it's at – two players pick up their joysticks, and battle it out against each other directly. Your success not only relies on your own abilities, then, but on the other player's ability to stop you – will

ENGLISH TEAR.

***Double Dragon*: a fight to the death about who gets to drive.**

TOP MULTI-PLAYER ACTION

Here's a look back at some of the games that have changed the face of multi-player games as we know them, plus a few that are just darned fine slices of action:

BLOODWYCH

Whether you know it by that name or some other (it was known as Dungeon Master in some incarnations) you'll have played some sort of *Bloodwych* game before. The idea is similar to the original 3D *Monster Maze* but with knobs on. Where *Bloodwych* excels is with the additions to this style – instead of a bare, empty maze, you're facing hundreds of walking dead, collecting keys, opening doors, flicking switches, finding secret walls, learning new spells, fighting, gaining extra abilities and more weapons, finding safe places to stop and sleep and much, much more.

***Bloodwych*, also known as Dungeon Master.**

The advantage of the two-player element here is obvious – the screen is split horizontally, each player controlling a party of four characters journeying through the same maze. As well as being able to see each other, the players suddenly have the opportunity to go off and do their own thing, attack the other player, or co-operate. More than any other game, *Bloodwych* brought out the worst in players – turning around and plugging someone in *Gauntlet* is one thing, but spending quarter of an hour tracking them down and setting up an ingenious ambush is quite another.

Rating: 🧍🧍🧍🧍🧍

GAUNTLET (KIXX)

Two-player *Gauntlet* is one of the all-time classic game playing experiences. The idea is very simple – two players, parading around as warriors, elves, wizards or valkyries (as you do), hack and slay their way through several hundred levels of foul ghoulies of the night. You watch the action from an overhead perspective, which gives you a better view of the nasties you have to kill (good).

The two-player system seems slightly strange at first – unlike *Dungeon Master*, both players actually use the same screen area to play. This, though utterly restricting your ability to run like hell away from your partner or split up and explore other areas, forces you to co-operate, making sure one player never gets left behind. Is this a good thing? Some levels allow you to shoot the other player, you know – if you can only run as far as

GAUNTLET
MERLIN
THOR
THYRA
QUESTOR
ATARI
AMSTRAD

your opponent get wise to your methods? Will he or she come up with a counter plan in time? Who'll finish the level first?

FRIEND OR FOE?

Competitive, isn't it? The two (or however many) of you have been dropped into an environment, and you're instantly at each other's throats (*sound like a communal student house – Dave*). Not all multi-player games are like that, though; they don't all involve shooting sideways glances at a friend's face while your computer character rips their arms off on-screen. Can you co-operate?

That's a touchy subject, isn't it – who gets the gold? Take *Gauntlet*, one of the best multi-player games ever to hit the 8-bits. Do you take advantage of the fact that Johnny's busy fighting off the trolls by nipping around him and laying your hands on the goodies, or do you wade into battle and divide the spoils equally once the marauding zombies have been dealt with?

These have been sore points for a long time now. If the programmer knew what he was doing to society when he gave the *Ikari Warriors* the chance to shoot each other in the back, he'd have gone off and written *Dizzy* instead.

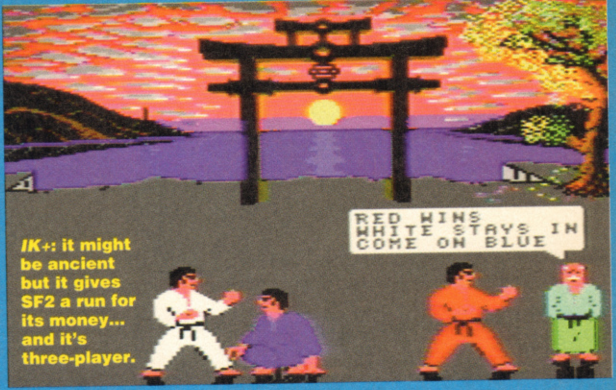
Co-operative games are funny like that – good intentions slide gradually downhill when you get the chance to through your *Rampage*-ing partner off the top of the building they've spent the last minute working their way up. Sure, they'll get you back, but if the game dissolves into a chase, you're still having fun.

THE HUMAN TOUCH

Multi-player game attraction number two is, of course, the fact that your opponent is no longer faceless. A pixelised bad guy doesn't come close to a fully grown man falling off his chair in surprise when you put an axe through his skull (er, not literally, you understand). With a multi-player game, you see, you know your enemy.

It goes deeper than just battling against a real, live opponent, though – personality traits always come through heavily in playing styles. You can guarantee that if you played against Dave Golder in *Gauntlet*, you'd be hit in the back by more nasty spells than a weather man, faster than you can say, "If you don't stop doing that I'll shove this battle-axe right up your RS232".

With different opponents come different tactics, levels of competence, mastery of particular skills and, above all, different death screams. If you're tired of the four different playing styles that the bad-guy algorithm can produce, why not start on the huge library of different strategic style we call the human race?



IK+: it might be ancient but it gives SF2 a run for its money... and it's three-player.

WWF European Rampage: verbal abuse.

ULTIMATE WARRIOR VS HULK HOGAN

A MATTER OF STYLE

There are many different types of multi-player games available at the moment – enough to suit the needs of even the most picky gamer. In fact, there are very few game styles that haven't received the stereo treatment at some point or other. Through the hundreds of different game styles that have had a second joystick attached, a few spring to mind:

1 BEAT-'EM-UPS

This lot'd be pretty sunk without a two-player mode. From *International Karate*, through the sequel *IK+* and onwards, kicking, punching or generally mashing the hell out of a mate-controlled competitor is always a darned sight more entertaining than playing the computer. Even the most dire beat-'em-ups (*Pit Fighter* and *WWF European Rampage* spring to mind) take on a strange fascination when you're playing a real person (though a lot of this has to with pointing out to each other how cack the games are, and falling about in laughter at being completely unable to control your players – something you never do when you're playing on your own, strangely).

You can find every type of competitive fighting from boxing (*Pro Boxing Sim*), through to virtually every kind of martial art (*Yie Ar Kung Fu*, Street Fighter 2) and even sword fighting (*Pirates*). As yet, we have no news on any multi-player aggressive sneering or unprompted name-calling romps (*WWF* came near), but we'll keep you posted.

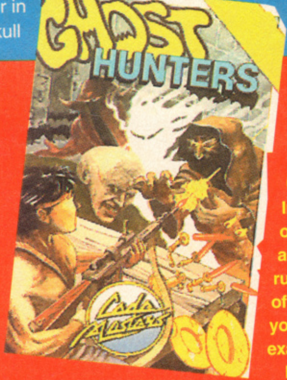
What made *IK+* so different was its inclusion of a third player – that's right, two on joystick and one on the keyboard – not so much a fight as all-out war. It's a weird but truly excellent game, still a standard bearer for C64 beat-'em-ups despite its age.

Street Fighter 2 is the first game that springs to most people's minds when you mention two-player beat-'em-ups. On the C64, however, it wasn't that great, mainly owing to some interminably jerky

---

one screen's distance away, things are bound to get more than a little hectic.

Rating: ♟♟♟♟



GHOST HUNTERS (CODEMATERS)

A novel idea from Codemasters, *Ghost Hunters* gave a whole new meaning to the two-player genre. Instead of two identical players wandering around the haunted castle, there's only one. The other player gets a gun. Just a gun. A gun that's represented purely by a targeting sight that he can move around the screen. While player one jumps around the screen like a wimp, his mate gets to gun down everything else, without worrying about platforms, lifts, spikes or anything.

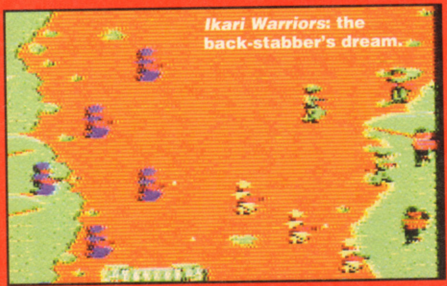
Funnily enough, this is one of the only games to use this kind of two-player style – it's automatically assumed that two players have to carry out the same task, when this isn't really true. The blend of *Operation Wolf* with a normal platform game was a novel approach to multi-playing that unfortunately no-one saw enough potential in to follow-up.

Rating: ♟♟♟

IKARI WARRIORS (ELITE)

In which you get a gun and a pile of grenades, and you run forward and kill things. Yep, that's it.You run up the screen, and thousands of enemy troops swarm towards you. That's it. Kill people. Not exactly startlingly original, is it.

But one of the braver aspects of *Warriors* is the fact that right from the start, you can do immense amounts of damage to the other player – one shot will kill them outright, and one grenade will blow them into several messy pieces if it lands anywhere nearby.

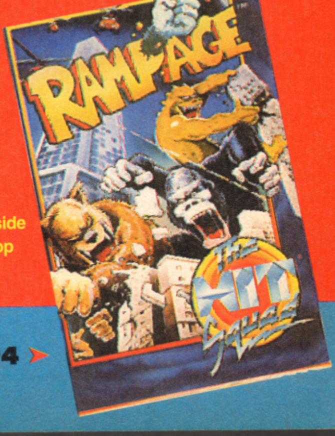


***Ikari Warriors*: the back-stabber's dream.**

RATING: ♟♟♟

RAMPAGE (HIT SQUAD)

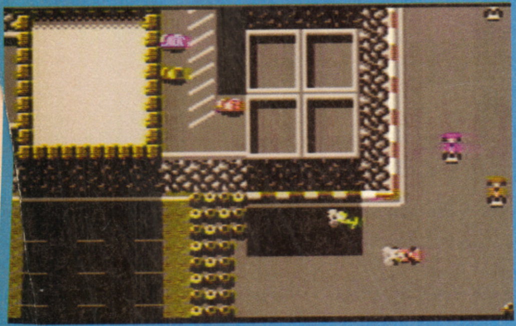
It sounds like a weird number, but *Rampage* is a three-player game. Each player chooses to be one of three terrifying monsters, and all three set about terrorising the city. Each screen consists of a set of skyscrapers that you can climb and vandalise, plus a few odd cars that you can throw about. When a skyscraper is in total ruin, it will collapse, to the physical detriment anybody stupid enough to be standing on it.



What makes *Rampage* so special is the sheer amount of fun you can have. If you don't feel like destroying a building, you could always set about knocking someone else off the side of theirs, having rooftop punch-outs, or even controls. But in two-player mode at least it has the very definite advantage that you can choose from a whole host of characters, each with their own special move. Everybody soon finds the character they're most competent with,making head-to-head bouts with mates a gloriously antagonistic experience. *WWF* and *WWF European Rampage* also had casts of fighters, but only the original game is really worth checking out – it's a decent enough romp with some great presentation. *European Rampage* was, frankly, a bit dull.

2 RACING GAMES

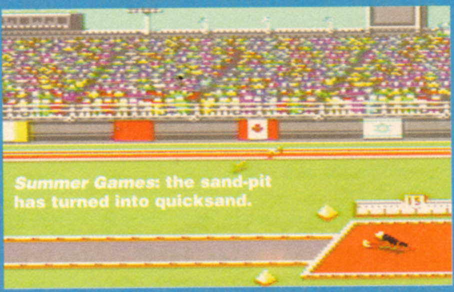
If you thought there were a lot of beat-'em-ups out there, you obviously haven't noticed the huge volume of racing games available too, most of which were released by Codemasters at some point. They did it all you know, writing and releasing games which let you simultaneously race anything from a pair of skis (*Pro Ski Sim*) to an ATV vehicle (*ATV Sim*).



The thing about overhead racers like *Slicks* is that you can forget the race and just try to run your opponent off the road. It's much more fun.

Lotus Turbo Esprit is probably one of the most widely known split-screen racer, though *Scalextric* was also around quite early on. Lotus is about the best two-player driving game of this type you're likely to get, but if you want some real aggro overhead racers are what you want.

Overhead racers are quite happy to have cars slamming into each other, and so make for a lot more fun on the track. The most memorable (apart from the ever present Codies and their *BMX Sim*) are *Slicks* (in which racing takes a second place to smashing into your opponents) and *Rally Destruction Set*.



Summer Games: the sand-pit has turned into quicksand.

3 SPORT SIMS

Sports game, like beat-'em-ups, lend themselves naturally to multi-player modes – sport, after all, is about competing. Let's face it, the first arcade smash, *Pong*, was basically two-player tennis (unfortunately, when you look at things like Zeppelin's table tennis you wonder whether things have improved that much). Playing *Kick Off 2* against the computer is fine for honing your talents but what you really want to do is trounce a real opponent. And games like excellent *RBI 2*, in which you have a team batting and a team fielding, mean that at any given time each player has to call on a different set of skills. Only golf games like Grandslam's *Nick Faldo* seem to be as much fun when you're trying to beat your own score as when you're playing a round with a mate – somehow trying to beat your own personal best is always more interesting than any individual match.

The undisputed kings of sport games, though, have to be the original Epyx sports sims. Though each game had some sort of sporting angle (*Summer Games*, *Winter Games*, *Second Friday After Whitsun Games*, etc), they still managed to get the racing angle down to a very fine art. If you've never tried to outrun some pixelized mean machine in a tense race to the end, you've obviously never played an Epyx game. The other type of two-player action they indulged in the rest of the time relied on sequential players – Ice Dance and the curiously named Hot Dog can get very tense when there's someone right behind you determined to top your score.

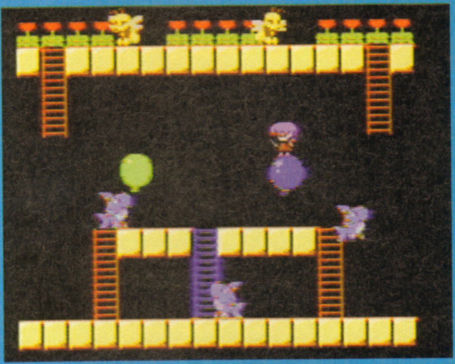
4 FLIGHT SIMS

Oddly enough, there haven't been too many multi-player flight sims available recently. In fact, only one springs to mind. It was good, though. *Top Gun* was one of those games that really benefited from a two-player option. Trying to control a plane, shoot someone and target a missile at the same time can be difficult, and a computer opponent exacerbates the situation by executing its manoeuvres perfectly every time. Flying against a second player gives you an incredible feeling, especially when you manage to loop the plane and end up behind them – the computer pilot would have been on your tail the whole time, and you'd have still ended up in front, the only difference being the missile that's trying to work out whether you brushed your teeth that morning. From the wrong end.

5 PLATFORM GAMES

What – can't you think of any? That's a pity really, as the whole, the platform genre is perfectly suited to having two players – what was at first timing problem can now be solved with strategy, as two people ambush a bad guy, catch a lift, flick a switch, or even just collect more bonuses. Two-player platformers, you see, usually involve co-operation as opposed to antagonism.

If you're looking for some top two player platform action, look no further than *Bubble Bobble* and *Rodland*. Both games follow very much the same theme, involving two cute little character jumping around killing things. Of course, there is a heavy competitive element involved in both games, but the whole idea of tackling a standard platform level with two people is mindblowing – the platform version of an incredibly intelligent enemy.



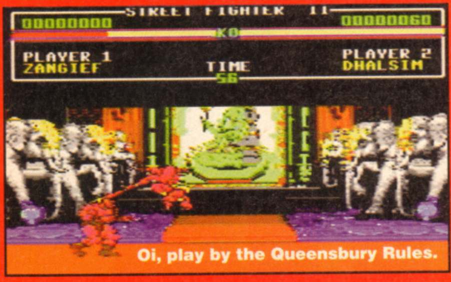
In *Rodland* one player can bash the baddies while the other one dashes about collecting all the goodies. Or at least that's the plan...

strategically finishing off a building when someone else just happens to be standing on top of it.

Rating: ♟♟♟♟

STREET FIGHTER 2 (US GOLD)

Hands up all those who've never played *Street Fighter 2*. By the look of the charts each month, there aren't that many who haven't rushed out and bought it. Beat-'em-ups have been around for yonks though, and *SF2* was by no means the first. Neither was *SF1*, by the way. Even if it was unoriginal, though, *SF2* is still hailed as one of the best beat-'em-ups the industry has ever produced. It wasn't exactly wonderful on the C64, but it's still the best beat-'em-up the C64 has to offer.



Oi, play by the Queensbury Rules.

Rating: ♟♟♟♟

TETRIS (PD)

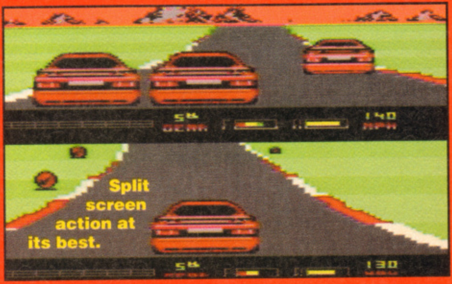
The game that launched a thousand hand-helds. Everybody and their dog knows what *Tetris* is all about. Simultaneous two player *Tetris* is different, though – when you complete two lines, your opponent gets a line added to the bottom of the pile. If you manage to get a *Tetris* – four lines completed at once – your opponent gets three lines added to their screen. The two players have half the screen each, which increases the tension, because you can see when your opponent is just about to slap three lines on your pile, and you have to try to put a spanner in his works.

Whether the commercially released *Tetris* (from Infogrames) had a two-player option we're not sure, but two-player versions of *Tetris* are definitely available in the public domain. Loads of 'em.

Rating: ♟♟♟♟

LOTUS ESPRIT TURBO CHALLENGE (GBH)

When Lotus appeared on the 64, it was not only a revelation in that it was actually a pretty good behind-



Split screen action at its best.

GETTING BOARD?

Board games – either love them, or fall asleep. Most of us prefer sleep, really – once you've experienced high quality computer software, moving counters around a piece of cardboard doesn't quite cut it, really.

This didn't stop developers, though – you could fill your software collection with games like *Trivial Pursuit*, *Monopoly*, *Draughts* and *Chess*. It's here that we see the who concept of two-player games turned completely on its head.

Can you play *Trivial Pursuit* on your own? No you can't. What was once a multi-player board game has been transposed onto computer screen, giving you the option to play against other computer characters. Strangely, almost all of these games lose their attraction when transposed to computer. Avoid.

6 PUZZLE GAMES

Oh happy joy. Just when you think you're doing quite well in the gaming stakes, someone throws as puzzle game at you. They've all been there – *Tetris* had a second player, as did *Klax* on some versions. Even completely hatstand games like *E-Motion* get the special treatment, meaning you can bang balls together with a friend if the mood takes you.

Puzzlers benefit greatly from the addition of another player, you see – if the game involves co-operation, a second person is just what you need at times, and the games that involve competitive puzzle solving give you more than just a clock to beat – it's hard to describe the sheer joy of slamming four extra lines onto someone else's *Tetris* screen, but you'd have to try it to believe the buzz.

There are some puzzle games that rely on very little two-player action, just happening to have two people playing the game at once. Such a game is *Plotting*, in which nothing the other player does will ever affect your own game – the fact that they happen to be using the same computer is purely coincidental.

7 SHOOT-'EM-UPS

There weren't any early two-player shoot-'em-ups, you know. Okay, so the odd game had facilities for sequential extra players, but gun fans had to wait for releases such as *1942* and *Ikari Warriors* to really make it big on the home computer scene.

The beauty of the two-player shoot-'em-up is that as a solo player you'll almost definitely get trapped into corners with huge amounts of aliens blocking you in. A second player can help you out, by wading in where you can't get, maybe saving your bacon. The two-player shoot-'em-up is probably the best example of co-operation you can find – it's all very well discussing some long, drawn out co-operation technique, but diving in to help at a moment's notice really pushes a partnership to the limits.

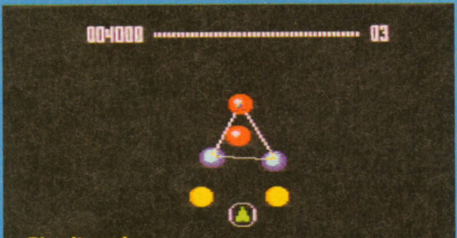
Surprisingly enough, though, everyone seems incredibly well versed in the system, we never see the type of game *SEUCK* could produce with its two player facilities. Here's hoping, though, as even *Super Space Invaders* which was, after all, just a rehashed version of the original, benefited greatly from the two-player situation, as both players were now on the same screen, dodging the bullets together.

8 ADVENTURES

It doesn't take a genius, or even someone with Dave's IQ, to realise that text adventures aren't exactly suited to two-player action. Once you enter the realms of graphical adventure games, though, it's a whole different story – one step beyond *Ikari Warriors* (with its horribly linear gameplay) comes *Gauntlet*, a fantasy slay-'em-up through hundreds of levels, lending itself perfectly to the two player action it supports.

On the slightly more serious side of the coin, there have been several RPG style games released quite a while back, *HeroQuest* being probably the most famous. Once again it's a sequential little game, never allowing both characters on the same screen together (anybody here watch *Superman?*), but it's about the closest you can come to multi-player RPGs without splitting the screen in two and causing a hindrance, considering how many damned calculations take place. You should be glad your machine runs that fast.

What's so great about multi-player adventure games is that they're exactly that – adventures. You can happily romp off to lands unknown on your tod if you want, but exploring new worlds is so much better if there're more than one of you – two people independently exploring an area cuts down the amount of time you have to spend wandering around, and gives you much-needed back-up if things go wrong in a fight, or whatever.



Play it again, with *E-Motion*.

THE DOWNSIDE

There is, of course, a downside to multi-player games. You see, once you've been ambushed and wasted with a few carefully chosen spells in the most cunning fashion, normal games won't ever seem the same again…

EXCUSES FOR WASTING A FRIEND

Everybody's done it – you decide to play co-operatively but as paranoia sets in, you notice that all the goodies seem to be going into one pocket, and it isn't yours. If you do feel like cruelly shooting someone in the back, there are a few excuses you can use:

- "I didn't realise my bullets could hurt you."
- "Sorry, wrong key." A word of warning, though; this only works once, and only holds water if you're using joystick. Otherwise, you're going to look like you're got all the co-ordination of an arthritic cranefly.
- "I thought you were someone else, so I emptied three pounds of lead into your face followed by a napalm hellfire, screaming 'die you greedy toe-rag' as you fell to the ground."

the-wheel racing game (the C64 had been pretty devoid of them previously) but it also boasted a superb split screen two-player mode. The simultaneously into the screen action was breathtaking and has never been bettered. This was deservedly one of the biggest-selling C64 games ever.

Rating: ★★★★★

Bend zee knees.

WINTER GAMES (EPYX)

It might be ancient, but *Winter Games* is special. It's a compilation of about ten different sports linked together, letting you actually compete in all events and total your scores at the end.

The two-player option will let you experience the most hideous side to human nature – one upmanship. This entire game is based on beating the second player and no-one else. There're no third computer characters, no co-operative events, just a series of opportunity to grab points.

Of course, Winter Games is also excellent because of the amazingly accuracy of the simulations, the beautiful presentation and the addictive gameplay…

Rating: ★★★★★

BUBBLE BOBBLE (HIT SQUAD)

This is a game that was to multi-player games what Rambo was to film extras – it blows them all away completely. The game was quite simply a manic romp through several flick-screen levels, with two dragons catching odd creatures in the bubbles they blow, and collecting sweets.

What made *Bubble Bobble* so amazing, though, was it's level layout, which at times really needed the co-operation of two players. There were unscalable walls that needed the second player to blow the odd bubble to bounce on, there were bubbles full of water that need to be burst to wash the other player out of a tight spot, or generally save people's lives.

Rating: ★★★★★

TOP
24670
CREDITS
9

***Bubble Bobble*: levels so tricky it takes two to get through them.**

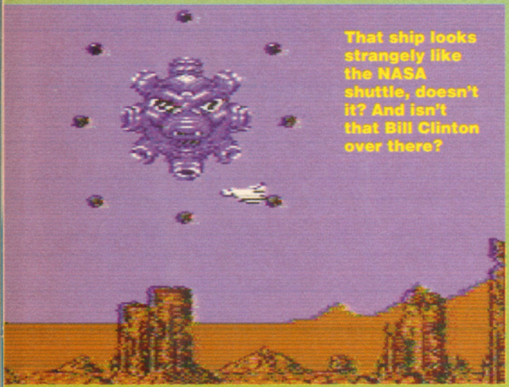
DEFENSIVE

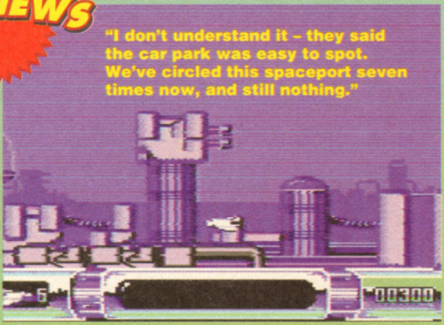
PREVIEWS

First up on the previews front this month is what looks to be quite a natty little number from Electric Boys, the up and coming C64 company headed by Russ Michaels. Interviewed on page 26, he talks not only about *Flashback* and *Jet Pac*, but about one of the first computer games the Leccys are going to release – *Defensive*.

Defensive, it would seem, is one of the first games to take the classic *Defender* and add some new twists to the gameplay as opposed to merely updating the graphics and sound – the basic idea of *Defender* is there, but there are also quite a few surprises in store.

As with *Defender*, this is a horizontally-scrolling shoot-'em-up, with you in your ship, on a mission to thwart the activities of a hostile alien race. And so, as the aliens swoop down to grab people from the various scenes, your job is to destroy their ships before they escape the earth and make off with their specimen.


That ship looks strangely like the NASA shuttle, doesn't it? And isn't that Bill Clinton over there?


"I don't understand it – they said the car park was easy to spot. We've circled this spaceport seven times now, and still nothing."

From the looks of the preview version, we should be seeing a finished version in these pages very soon, and it looks to be a definite improvement on the original:

- **Power-ups** – It's no fun having a crap ship, but the score and ship bonuses you'll find on your mission to rescue the poor, innocent citizens will almost definitely help your progress, and give you the kind of craft that'll turn heads back at the Greasy Spoon.
- **Guardians** – Each level ends with a battle against an end-of-level guardian. As this is only a preview version, we only have one guardian to show you, but it doesn't half look nasty – more cannons than a photocopying shop.
- **Scenes** – The graphics in general have had to go through a fairly major face lift for inclusion in *Defensive*. In fact, they look very little like the original graphics which, considering the limited visual appeal of *Defender*, is probably a good thing. Let's just hope the gameplay is as totally addictive as it used to be.

"Lovely day for a picnic. Let's park just here."

So that's *Defensive*, then. Stand by for a full review as soon as possible, but in the meantime you might like to think about sharpening those reflexes. They'll need it.

VITAL STATISTIX

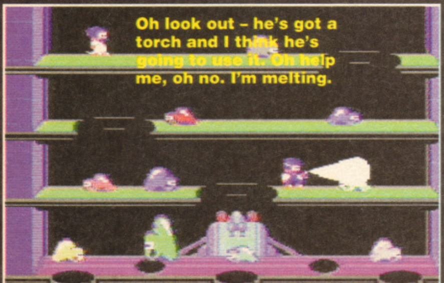
Game	*Defensive*
Produced by	The Electric Boys
Release Date	July
Contact Address	917B Brighton Road, Purley, Surrey, CR8 2BP
Other information	Disk only
Price	TBA

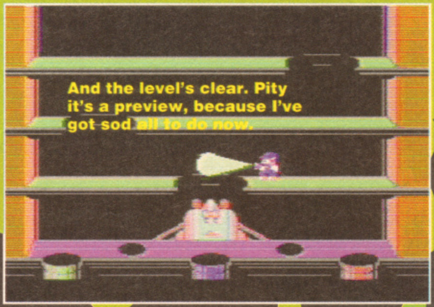
GERM ALERT

PREVIEWS

We see a lot of odd games here at *CF*, but this one's smashed through the 'odd' boundary and is currently charting an unknown region of 'bizarre'. As you can probably guess from the title, this is a game about bug hunting – with a difference. Plots being the obvious things they are, I'll cut to the chase. You take control of a little exterminator blokey running around various tunnels and tubes armed only with an odd zappy thing that somehow manages to wipe out bugs by shining them to death.

That means it's a platform game, then. From what we've already seen of *Germ Alert*, though, accuracy and timing, which you normally have to spend a good few lives mastering, are problems partially overcome by a slightly intelligent sprite, who actually goes a long way towards timing some of the jumps for you. Okay, so that's not exactly true, but the design of *Germ Alert* is so fun-orientated that moving around isn't something you have to think too hard about.


Oh look out – he's got a torch and I think he's going to use it. Oh help me, oh no. I'm melting.


And the level's clear. Pity it's a preview, because I've got sod all to do now.

The game is going to be a lavish flick-screen affair, with each wrap-around screen being a separate level in its own right. Within each screen, though, there are lots of passages and handy little pipes that'll either drop you from the bottom of the screen then warp you back up onto the top again, or let you run off to the left and reappear on the right again (*Pacman*-style). Yep, it's one of those.

Before we go any further, I should tell you about The Cute. As you probably know, there is a specially appointed government body that exists solely for the purpose of rating the cuteness of a platform game on a percentage scale. When we approached the GCCG (Government Commission for Cuteness in Games), this title in hand, they gave us the following mark; "76 – Enjoyable cuddly characters with no cloying illustration or mindless grin". What that means in plain C64ese is *Rick Dangerous* (it received 77, which is pretty close).

When *Germ Alert* does arrive, then, it'll almost definitely be a hell of a lot of fun, and one for the collection.

VITAL STATISTIX

Game	*Germ Alert*
Produced by	Visualise
Release Date	August
Contact Address	9 De Gray Road, Gaywood, King's Lynn, Norfolk, PE30 4PH
Other information	Tape/disk
Price	TBA

AMIGA

NEW! AMIGA 1200 + CD³² PACKS

FROM SILICA – THE UK's No1 AMIGA SPECIALISTS

CONTACT US FOR YOUR *FREE* 64 PAGE AMIGA CATALOGUE

FREE! FROM SILICA

SOFTWARE PACK

When you buy your Amiga from Silica, at our advertised prices, we will give you one or more free gifts. The gifts include the new Chaos pack, GFA Basic & Photon Paint II. Check this ad to see which gifts come with each Amiga from Silica. An enhanced AGA version of Chaos that takes full advantage ot the AA Chipset will be sent with A1200 & A4000s.

CHAOS ENGINE	£25.99
SYNDICATE	£34.99
PINBALL FANTASIES	£29.99
NICK FALDO'S CHAMPIONSHIP GOLF	£34.99
CHAOS PACK:	£125.96
GFA BASIC v3.5 - Powerful Basic Programming Language	£50.00
PHOTON PAINT II - Powerful Graphics Painting Package	£89.95
TOTAL VALUE:	**£265.91**

GFA BASIC 3.5 Interpreter
PHOTON Paint
CHAOS
NICK FALDO'S GOLF
AMIGA GOLD FORMAT

WORTH OVER **£265**

AMIGA 600
LEMMINGS PACK

2Mb VERSION +£30 RAM 0605
Lemmings
DELUXE PAINT III

FREE CHAOS! PACK

1 YEAR ON SITE/AT HOME WARRANTY ON ALL CONFIGURATIONS

FREE DELIVERY

PACK INCLUDES:

1Mb AMIGA 600	£199.99
BUILT-IN 1Mb DRIVE	–
BUILT-IN TV MODULATOR	–
DELUXE PAINT III	£79.99
LEMMINGS	£25.99
FREE FROM SILICA (See Top Left)	£125.96
TOTAL PACK VALUE:	£431.93
LESS PACK SAVING:	£242.93
SILICA PRICE:	£189.00

1Mb RAM	PREVIOUSLY ~~£299~~ **£189** INC VAT - AMC 0666
2Mb RAM	PREVIOUSLY ~~£329~~ **£219** INC VAT - AMC 0666 + RAM 0605

AMIGA 600
WILD, WEIRD & WICKED

AMIGA
THE WILD THE WEIRD & THE WICKED
2Mb VERSION +£30 RAM 0605

FREE CHAOS! PACK

1 YEAR ON SITE/AT HOME WARRANTY ON ALL CONFIGURATIONS

FREE DELIVERY

PACK INCLUDES:

1Mb AMIGA 600	£199.99
BUILT-IN 1Mb DRIVE & TV MODULATOR	–
DELUXE PAINT III	£79.99
MICROPROSE GRAND PRIX	£34.99
SILLY PUTTY	£25.99
PUSH OVER	£25.99
FREE FROM SILICA (See Top Left)	£125.96
TOTAL PACK VALUE:	£492.91
LESS PACK SAVING:	£293.91
SILICA PRICE:	£199.00

1Mb RAM	PREVIOUSLY ~~£299~~ **£199** INC VAT - AMC 0649
2Mb RAM	PREVIOUSLY ~~£329~~ **£229** INC VAT - AMC 0649 + RAM 0605

AMIGA 600HD
EPIC + HARD DRIVE

E·P·I·C
INCLUDES HARD DRIVE
2Mb VERSION +£30 RAM 0605

FREE CHAOS! PACK *PLUS!* GFA & PHOTON

1 YEAR ON SITE/AT HOME WARRANTY ON ALL CONFIGURATIONS

FREE DELIVERY

PACK INCLUDES:

1Mb AMIGA 600	£199.99
BUILT-IN 1Mb DRIVE & TV MODULATOR	–
64Mb HARD DISK	£179.00
EPIC - A SCI-FI ADVENTURE	£29.99
ROME - ROLE PLAYING ADVENTURE	£25.99
MYTH - STOP THE SPREAD OF EVIL	£19.99
TRIVIAL PURSUIT - POPULAR QUIZ	£29.99
FREE FROM SILICA (See Top Left)	£265.91
PACK VALUE:	£750.86
PACK SAVING:	£401.86
SILICA PRICE:	£349.00

2Mb VERSION + £30 RAM 0605

1Mb RAM 64Mb HD	**£349** INC VAT - AMC 0964
1Mb RAM 85Mb HD	**£399** INC VAT - AMC 0985

AMIGA 1200 PACKS + HARD DRIVE OPTIONS

RACE 'N' CHASE

NIGEL MANSELL
AMIGA 1200
RACE 'N' CHASE
TROLLS
AS STANDARD 2Mb RAM BUILT-IN

FREE CHAOS! PACK *PLUS!* GFA BASIC **NEW!**

1 YEAR ON SITE/AT HOME WARRANTY ON ALL CONFIGURATIONS

FREE DELIVERY

PACK INCLUDES:
- 2Mb Amiga 1200
- Trolls AGA
- Nigel Mansell's World Championship AGA
- + *FREE FROM SILICA* (See Top Left)

RACE 'N' CHASE

RAM	HD	Price
2Mb RAM	0Mb HD	**£299** INC VAT - AMC 1224
2Mb RAM	80Mb HD 18ms	**£449** INC VAT - AMC 1480
2Mb RAM	127Mb HD 16ms	**£499** INC VAT - AMC 1527
2Mb RAM	200Mb HD 17ms	**£549** INC VAT - AMC 1600
2Mb RAM	340Mb HD 16ms	**£699** INC VAT - AMC 1640

COMPUTER COMBAT

AMIGA 1200
32-BIT POWER
COMPUTER COMBAT
AS STANDARD 2Mb RAM BUILT-IN

FREE CHAOS! PACK *PLUS!* GFA BASIC **NEW!**

1 YEAR ON SITE/AT HOME WARRANTY ON ALL CONFIGURATIONS

FREE DELIVERY

PACK INCLUDES:
- 2Mb Amiga 1200
- Total Carnage
- Brian The Lion
- Zool 2
- WordWorth V2
- WordWorth Print Manager
- Day By Day Planner
- Personal Paint V4
- + *FREE FROM SILICA* (See Top Left)

RAM	HD	Price
2Mb RAM	0Mb HD	**£349** INC VAT - AMC 2049
2Mb RAM	80Mb HD 18ms	**£499** INC VAT - AMC 2081
2Mb RAM	127Mb HD 16ms	**£549** INC VAT - AMC 2128
2Mb RAM	200Mb HD 17ms	**£599** INC VAT - AMC 2201
2Mb RAM	340Mb HD 16ms	**£749** INC VAT - AMC 2341

AMIGA 1200 SPECIFICATIONS
- 68020EC Processor - 14.19MHz Clock Speed
- 32-bit Architecture/2Mb Chip RAM
- Amiga DOS v3.0/Built-in TV Modulator
- AA Chip Set/16.8 Million Colours
- 1 x 32-Bit CPU/RAM Expansion Slot
- PCMCIA Smart Card Slot
- 96 Key Keyboard with Numeric Keypad
- 2½" Internal IDE Hard Drive Options
- 1 Year On-site Warranty

HARD DRIVE OPTIONS
- Approved 2½" Hard Drives
- Fitted correctly below metal safety shield - does not invalidate warranty
- Covered by Commodore's Official 1 Year On-Site Warranty
- Look for Special 'Official Upgrade' sticker

AMIGA 4000
SPECIFICATIONS

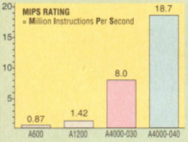
INCLUDES:
- Deluxe Paint IV AGA
- WordWorth V2
- WordWorth Print Manager

FREE CHAOS! PACK

MONITOR OPTIONAL EXTRA

1 YEAR ON SITE/AT HOME WARRANTY ON ALL CONFIGURATIONS

FREE DELIVERY



The A4000 runs at up to **21 times** the speed of the A600.

GRAPHICS :
- 16.7 MILLION COLOURS
- RESOLUTIONS UP TO 1280x512 and 800x600

OPEN ARCHITECTURE:
The A4000 has been designed for maximum flexibility providing plenty of room for memory & peripheral expansion.
- 4x16/32-BIT ZORRO III SLOTS (TOWERx5)
- 3xPC-AT SLOTS (TOWERx4)
- 1x24-bit VIDEO SLOT (TOWERx 2)

POWER :
- 1.76Mb 3½" FLOPPY DRIVE

NEW! AA CHIPSET

AMIGA 4000
CONFIGURATIONS

The Amiga 4000 030EC, 040LC and 040 SCSI Tower are available in several RAM/Hard Drive options from Silica (please see below). All are fully configured and approved and carry Commodore's full one year on-site warranty. RAM upgrades are also available from Silica. Due to current fluctuations in the market, please call for upgrade prices.

NEW MODEL

25MHz 68030EC DESKTOP

4Mb RAM 214Mb HARD DRIVE

£999 INC VAT - AMB 3214

25MHz 68040LC DESKTOP

RAM	HD	Price
6Mb RAM	214Mb IDE HD 10.5ms	**£1649** INC VAT - AMB 4621
6Mb RAM	540Mb IDE HD 12ms	**£1899** INC VAT - AMB 6454

25MHz 68040 SCSI TOWER

RAM	HD	Price
6Mb RAM	214Mb IDE HD 16ms	**£1999** INC VAT - AMB 5216
6Mb RAM	525Mb SCSI HD	**£2299** INC VAT - AMB 5526
6Mb RAM	1Gb SCSI HD	**£2599** INC VAT - AMB 5706

RAM UPGRADES
CALL FOR PRICES

COLOUR MONITOR
FOR ALL AMIGAS

FREE STEREO SPEAKERS & CABLES FOR CONNECTION TO THE AMIGA

MICROVITEC 1438 MONITOR
- .28mm Dot Pitch 14" Colour Screen
- Up to 1024 x 768 Resolution
- 15-38KHz Horiz Frequencies
- Analogue RGB Input
- External Controls: Brightness, Contrast, Horizontal and Vertical Centring/Height
- Anti-glare Screen
- Stereo Sound

FREE DELIVERY **£299** INC VAT - MON 5438

STEREO MONITOR
FOR ALL AMIGAS

FREE AMIGA CABLE FROM SILICA

1084S
- .42mm Dot Pitch 14" Colour Screen
- 600 dots x 285 lines Resolution - 15.75KHz
- Analog RGB, Ditigal TTL and Composite Video
- External Controls: Volume, Brightness, Contrast, Colour, Horizontal & Vertical, Centring Height
- Anti-glare Screen
- Headphone Socket
- Stereo Sound

CABLE REQUIRED FOR CD32 CAB 5235 - £8.95 INC VAT

FREE DELIVERY **£199** INC VAT - MON 4184

C= APPROVED

Silica are a fully authorised Amiga dealer. We can upgrade Amiga 600 or 1200's with hard drives, for new or existing owners, without affecting Commodore's official on site warranty. We offer other upgrades and repair service for A500 and A500PLUS computers.

UPGRADES & REPAIRS
- *Latest test equipment*
- *20 trained technicians*
- *1,000s of parts in stock*
- *FAST, 48 hour service*
- *We can collect (£5+VAT)*
- *FREE return courier*
- *All work guaranteed*

CALL FOR A PRICE LIST

TV/MONITOR
FOR ALL AMIGAS

NEW

SHARP
DV3750

FREE AMIGA SCART CABLE FROM SILICA

- 14" Remote Control Colour TV/Monitor
- Inc RGB Scart Socket for use with Amigas
- Infra Red Remote Control
- On Screen Display to Adjust Colour/Volume
- On/Off Timer
- Flash Back Feature
- 40 Channel Programme Memory
- FREE Amiga Scart Cable from Silica

FREE DELIVERY **£169** INC VAT - MON 6500

CD³² SPECTACULAR VOYAGE

AMIGA CD³² 32-BIT POWER
SPECTACULAR VOYAGE

***NEW!* NOW WITH 6 CD TITLES**

GREAT NEW PACK *NOW WITH*

MICROCOSM + CHAOS ENGINE

***PLUS!* DANGEROUS STREETS WING COMMANDER DIGGERS & OSCAR**

FMV MODULE

COMPACT disc DIGITAL VIDEO
CD-i LINEAR COMPATIBLE

- PLUGS INTO THE BACK OF THE CD³²
- ALLOWS YOU TO PLAY VIDEO CDs
  Full screen, full motion films & music videos
- CD-I LINEAR COMPATIBLE
  Allows you to play CD-i films & music videos
- PERFECT FREEZE FRAME
- INSTANT TRACK SELECTION
- SUPERB CD QUALITY SOUND

TOP RATED

FREE DELIVERY **£199** INC VAT - CCA 0320

A FULL RANGE OF GAMES, FILMS & MUSIC VIDEO TITLES ARE AVAILABLE FOR CD³² - CALL FOR A PRICE LIST

32bit
AMIGA CD³²
AMIGA CD³² 32 BIT CD-ROM GAMES CONSOLE

- 32-BIT POWER
  The worlds first CD-ROM console to use 32-bit technology, 4 x faster than a 68000 CPU
- 2Mb RAM
- CD QUALITY STEREO SOUND
- 16.8 MILLION COLOUR PALETTE
- GAMES FROM BELOW £20
- PLUGS INTO A TV OR MONITOR
- PLAYS MUSIC CDs
- DUAL SPEED
  Transfers data almost twice as fast as ordinary CD-ROM drives
- MULTI-SESSION
  Recognises ALL data on CDs, even if the information was added after initial pressing
- 11 BUTTON CONTROL PAD
- COMPATIBLE WITH 26 CDTV TITLES
- FULL SCREEN VIDEO-CD
  Optional extra FMV module which allows you to watch films on the CD32 - compatible with the latest Video-CD standard, endorsed by JVC, Matsushita, Phillips and Sony (see left)
- CD-i LINEAR COMPATIBLE
  With optional FMV module, will play CD-i films and music videos
- 6 FREE CD TITLES
  - MICROCOSM
  - CHAOS ENGINE
  - DANGEROUS STREETS
  - OSCAR
  - WING COMMANDER
  - DIGGERS

FREE DELIVERY

CD³² + 6 FREE CD TITLES **£239** INC VAT - CCD 3299

THE SILICA SERVICE

SILICA 1978 1993 15 YEARS SERVICE TO YOU

Before you decide when to buy your new computer, we suggest you think very carefully about WHERE you buy it. Consider what it will be like a few months after you have made your purchase, when you may require additional peripherals or software, or help and advice. And, will the company you buy from contact you with details of new products? At Silica, we ensure that you will have nothing to worry about. With our unrivalled experience and expertise, we can meet our customers' requirements with an understanding which is second to none. Complete and return the coupon now for our latest FREE literature and begin to experience the "Silica Service".

- ***FREE OVERNIGHT DELIVERY:***
  On all hardware orders shipped in the UK mainland (there is a small charge for Saturday delivery).
- ***TECHNICAL SUPPORT HELPLINE:***
  A team of technical experts will be at your service.
- ***PRICE MATCH:***
  We match competitors on a "Same product - Same price" basis.
- ***ESTABLISHED 15 YEARS:***
  We have a proven track record in professional computer sales.
- ***PART OF A £50M A YEAR COMPANY:***
  With over 200 staff - We are solid, reliable and profitable.
- ***BUSINESS + EDUCATION + GOVERNMENT:***
  Volume discounts are available. **Tel: 081-308 0888.**
- ***SHOWROOMS:***
  We have demonstration facilities at all our stores.
- ***THE FULL STOCK RANGE:***
  All of your computer requirements are available from one specialist supplier.
- ***FREE CATALOGUES:***
  Will be mailed to you, with special reduced price offers, as well as details on all software and peripherals.
- ***PAYMENT:***
  We accept most major credit cards, cash, cheque or monthly terms (APR 29.8% - written quotes on request).

SILICA

SILICA IS A DIVISION OF PROOS PLC

16001404/4

MAIL ORDER
PLUS TECHNICAL AND HEAD OFFICE
081-309 1111

1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 5SS

PLUS BRANCHES AT:

CHELMSFORD	**Tel: 0245 355511**
Debenhams (2nd Floor), 27 High St, Chelmsford, Essex, CM1 1DA	
CROYDON	**Tel: 081-688 4455**
Debenhams (2nd Floor), 11-31 North End, Croydon, Surrey, CR9 1RQ	
GLASGOW	**Tel: 041-221 0088**
Debenhams (5th Floor), 97 Argyle St, Glasgow, Strathclyde, G2 8AR	
IPSWICH	**Tel: 0473 221313**
Debenhams (2nd Floor), Westgate Street, Ipswich, IP1 3EH	
LONDON	
52 Tottenham Court Road	**Tel: 071-580 4000**
Debenhams (3rd Floor), 334 Oxford St	**Tel: 071-493 3735**
Selfridges (Basement Arena), 369 Oxford St	**Tel: 071-629 1234**
MANCHESTER	**Tel: 061-832 8666**
Debenhams (3rd Floor), Market Street, Manchester, M60 1TA	
SIDCUP	**Tel: 081-302 8811**
1-4 The Mews, Hatherley Road, Sidcup, Kent, DA14 4DX	
SOUTHEND	**Tel: 0702 468039**
Keddies (2nd Floor), High St, Southend-on-Sea, Essex, SS1 1LA	

To: Silica, CMFOR-0694-104, 1-4 The Mews, Hatherley Rd, Sidcup, Kent, DA14 4DX

PLEASE SEND ME A 64 PAGE AMIGA CATALOGUE

Mr/Mrs/Miss/Ms: .... Initials: ....

Surname: ....

Company (if applicable): ....

Address: ....

....

....

....

.... Postcode: ....

Tel (Home): ....

Tel (Work): ....

Which computer(s), if any, do you own?

.... 104AC

E&OE - Advertised prices and specifications may change - Please return the coupon for the latest information.

PD FORMAT

Demos – pretty, but pretty pointless, perhaps? Simon suspects the programmers have more fun creating them than the we do watching them. But is that always the case?

It's a spinning ball type thing. An illegible spinning ball type thing.

Over the past months, we've looked at all sorts of different types of software such as action games, adventure games, serious utilities, art packages, music packages, and just about every other type of program you can get on the PD circuit.

We missed demos. Well, we briefly covered them, but I slagged them off and got on with good, relevant stuff instead. A load of annoyed phone calls and letters from readers, however, have lead to an entire page (this one) being given over to these worthless wastes of time and space.

Well what a surprise – it's a picture with the word 'Camelot' above it.

LONG TIME NO C RIGH
Wonderland 9 shows a heavy slant toward to graphic artist.

BELT UP, SIMON

Okay, so maybe they do have some value. They, erm, yes. They show off a particular programmer's talents, and his ability to mimic a graphic effect that everyone else has been using in their demos since time began. Today, we're going to look at those techniques in a fresh, new light, and say things like, "that's really quite good, actually, isn't it" through tightly clenched teeth.

WONDERLAND (UTOPIA PD)

I've seen a lot of demos, me. I've seen just about every form of graphical technique known to man (well programmer, anyway). There isn't much left to surprise me. This may seem like an odd statement, but it's true – though demos exist solely to surprise the victim and show off the programmer's talents, they very rarely contain anything even vaguely new. This isn't a huge oversight on the part of every demo writer alive today, it's just that everything's been done already.

But, contrary to popular belief, you can teach an old dog new tricks as this demo proves. It's a demo that, thankfully, doesn't throw a few flashy effects around and hopes that'll do. This is a demo that covers older techniques, but properly this time.

One thing that seems to separate C64 demos from the kind of tat available on other 8-bits is the heavy attention paid to the 'graphic artist' and 'musician' as well as the programmer – some sections of this demo in particular appear to be there purely to demonstrate the artist's talent. The first section is a classic example.

Wonderland 9 opens with a portrait of a young woman drawn in a classic comic book style. It's easy to visualise the argument between the artist and the programmer, as the image is obscured by a grey bar sliding around, on which appears a scrolling message. As the woman winks, the picture starts to slide around, while the entire screen moves smoothly in its various directions.

From then on, *Wonderland 9* lies heavily in the hands of the programmer, and we're subjected to his bob animations which start as mathematically clever generated shapes, and end up forming the demo's second scrolling message, wrapping round on itself in such a tight space it's almost illegible. Whoever was writing the scroll happily sums up the entire effect as 'ugly', and the space bar beckons to be pressed, bringing on the next part.

From then on, *Wonderland 8* goes from strength to strength, displaying not only some truly excellent graphic techniques, but some rather natty presentation skills as well. The graphics maintain a high quality, and they're accompanied by some wonderfully composed music, making good use of the C64's sound capabilities.

I've got to say that I don't feel at all safe with computers displaying inverted crosses and mentioning such jovial subjects as life after death, but the short journey into the occult isn't too off-putting. It's just scary, that's all.

If you want to see exactly what your machine is capable of without having a programmer's ego shoved down your throat, *Wonderland 9* is a demo to seek out.

80% **A good, well-programmed demo with some impressive graphice effects**

UN-NAMED DEMO (UTOPIA PD)

They couldn't be bothered to name it. I think I can see why; it's not especially bad, it just doesn't really strike you as anything all that special. There are some demos that have you spitting your teeth out in surprise, while others just invoke the response, "oh – it's a demo," and this little title definitely belongs in the latter category.

Holding true to the classic style, then, Camelot's *Un-named Demo* consists of several sections, all of which feel slightly identical. Most sections contain the word 'Camelot', written in yet another graphical style, with very little else to look at.

There is one section that's definitely worth mentioning, though, as although it's been done hundreds of times before, it bears a special relevance to this issue. The screen looks very much the same as every other, but the effect accompanying the word 'Camelot' is an odd colour cycling type thing. Why is this at all relevant? Well, I suspect they've used one of the effects the Apex Boyz talk about in their graphics series this month.

These tricks with the colour RAM appear on-screen as a huge seething mass of pixels, cycling colours in a very odd, almost chameleon-like way. As if to take the process one step further, this effect is then used to draw and pulsate a slightly more organised shape, making this a demo worth getting for this part alone.

50% **One good section, and three completely duff bits.** CF

MAKING 10TH DAN

Jon Wells' ambition is to write the definitive C64 beat-'em-up. Last month he told us about how he gathered together a team that was up to the task. Now the coding begins...

DIARY OF A GAME: MONTH TWO

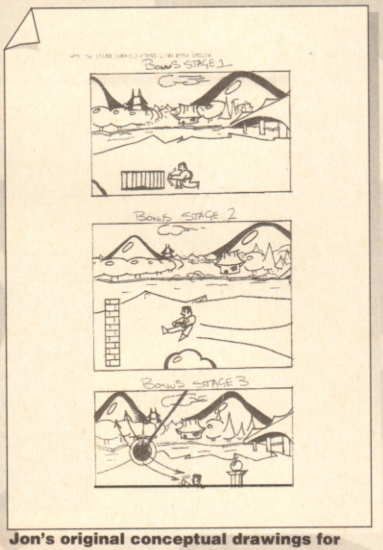
Okay, I admit it – not as much got done as we had hoped this month, but the programming has begun. Phil Nicholson was still busy finishing off his won game called *Deadline* (*previewed on page 22 – Dave*). In the meantime I've been trying to get that FAST scroller to work; there have been a few problems, though, as it uses a special technique with the $D011 screen pointer. You see, the trouble with that is that is corrupts and changes the memory pointers on sum C64 machines and in turn this causes our lovely C64 to crash… aaargh!

Well, I'm determined to get it going successfully, and I'll plug away at the keyboard until I do. Some of the screen status graphics have been drawn. For there, I've opened the top and bottom borders so that I can fit them in using sprites. Not only is this easier to control, but it saves more memory and gives us a full screen to play around with.

SUCCESS

Yeah, yippee, ya ha ha, I've done it!. Sorry, got a bit carried away there, but I'm very happy at the moment. Yes, you've guessed it, I've got that scroller working – it doesn't crash any more, and it can go from 0 to 60 in .0001 seconds… er, well in fact it can go up to 32 pixels or more every 50th of a second, which is fast. This scroller is also full screen and full colour, and only uses up to $30 hex raster lines on screen at all times, which is very impressive for the good old C64.

I've now got the scroller working along with the open borders, and it looks and moves well. Mind you it should do – it took me three weeks to get it going. Three weeks! I'll be sorting a map and block editor next, so it may get a mention next month.



Jon's original conceptual drawings for the bonus levels of the game.

TAKING SHAPE

The last week in February is coming to a close, so I decided to compile a full list of designs for the game. I also drew a few pictures for graphical ideas as reference for the future. So with no further ado, here's the complete design structure to date:

- The complete game will feature full-sized left/right scrolling. This is controlled by the computer instead of the players, so that they will remain in the centre of the play area.
- There will be three different scenery levels; these are two screens in length. Various parts of the background can be animated as it will be under character mode; the karate men will be under sprite mode. The reason why I've stated this is because you could have a third fighter in character mode. The blue man in *IK+* is in char mode, you know.
- There will be three bonus stages between each scenery bout. Each scenery will correspond with the relevant bonus stage. In various scenery bouts the background will form parts of the foreground, enabling the players to move behind the graphics, eg, trees, rocks or fences. As such the $D01B pointer will be used to save on wiping sprites.

GAME FEATURES

- Ying/Yang bout indicator. Each successful bout results with half a circle. Once you have two full ying/yang circles, that level is complete.
- Level indicator. This starts on novice/wipeout. After black belt it will change to first Dan/Wipeout and after this reaches black belt it changes to 2nd Dan/black belt, and so on. The highest level will be 10th dan/black belt, after which you achieve grandmaster status.
- Player one. Consisting of 3x5 sprites – sprites 1,2 and 3 multiplexed five times down.
- Player two. Consisting of 3x5 sprites – sprites 4, 5, and 6 multiplexed 5 times down.
- Energy bar. Once depleted that player loses the bout.
- Time limit. Each bout lasts 60 seconds, after which the player with the most energy left will win that bout.
- The screen will be 24X40 chars wide, with full character colour scrolling, using the $D011 pointer to handle this. RCM (raster colour mixing) can be used to present better colour displays in character mode.
- Both players will be controlled by joystick. It would be best to first program the fighting controls as a two player game. Joystick port 2 will be player one, while the other port will be player two/computer.

BONUS STAGES

Here are some early ideas for bonus rounds more will be added but here are the best three so far.

Bonus stage 1 – the stone slates: You must punch through the stone slates. The more you destroy the higher your bonus score. To do this you must skillfully waggle the joystick left/right at a steady pace to build up power. After a short time limit the player will automatically swing his fist at the slates.

Bonus stage 2 – the wall: You have to smash your way through a solid brick wall. To do this you must take a long run up from the far right hand side (using the scroll routine) and do a flying kick. To gain speed you skilfully waggle the joystick left/right pressing fire when close to the wall to do the jump. The faster your speed, the greater chance you have of breaking the wall down.

Bonus stage 3 – swinging pendulum: You must punch the pendulum at the right moment to force to IT to swing higher. When you want to stop punching you have to duck to let it pass over you or face the consequences. The idea is to get the pendulum high enough to cut the apple which is behind you on an alter. The higher the pendulum, the more of the apple will be

CREDITS

Let's roll out the barrel.. er.. credits! Three people will be involved in this new project – Phil Nicholson (known to his friends as Betrayer on the demo scene), Jon Wells (that's me!) and Paul Hannay (The Feekzoid!) – we're the SPACETIME crew. And don't you forget it.

3RD DAN

Now the scrolling code is complete we can start on the real meaty coding, and also the dreaded computer intelligence. This sounds harder than it really is. In fact, I've already got an idea of how this will work. Find out more in part three.

DEADLINE

Simon takes a look at what could be a slightly twisted contender to The Electric Boys' Defensive.

The year is 2094. You are on board an observation ship which is on a mission to explore a planet and its three moons. Teams of scientists are sent down to the surfaces of the planet, in groups of 10 to 15 men. Everything is happy, skippy, joy until one of the teams loses contact with the mothership. With absolutely no time to draw up any kind of emergency plan, the team decide to send a tracer droid down to the surface to pick up the scientists, who're getting grief from a bunch of aliens that don't just want their spare change, guv.

It was at this point that the other teams completely lost contact with the mothership as well. Big problemo.

I think we can see the rest of the plot from here – you're placed in control of the tracer droid, a little hovering blob with a mounted laser cannon. It's your job to fly through the horizontally scrolling landscape, hover over the scientists, and beam them up on board.

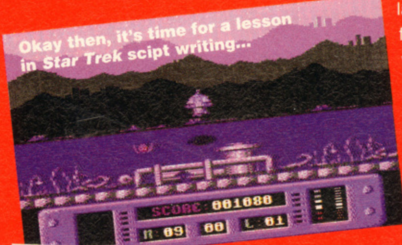
Deadline will be the first game released by Visualise, yet another new independent software company on the C64 scene. The first thing you'll notice about the game is the quality of what you're watching – the background alone is enough to kill a man, involving three different parallax landscapes in wonderfully shaded silhouette, several tons of interesting earth and landscape in the foreground, and some very smooth scrolling.

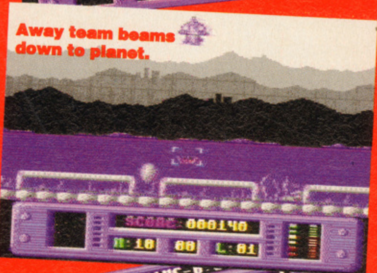
So you're flying over the landscape avoiding everything you possibly can, shooting everything else, and teleporting scientists in distress. The teleport system involves simply hovering over the boffin who's floating in the water, targeting him, and bringing the entire droid down on his head. It sounds cruel, but once you've sucked them up you can reduce them to their component atoms and fling them in a bitstream through space with just a flick of the wrist.

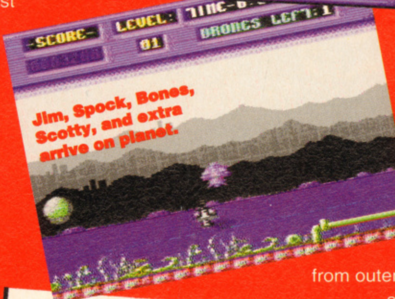
Then there are the aliens. From what we've seen so far, they're the part of the game that isn't here, but we've seen the odd killer ball from outer space floating lazily around the place, so we can imagine, can't we?

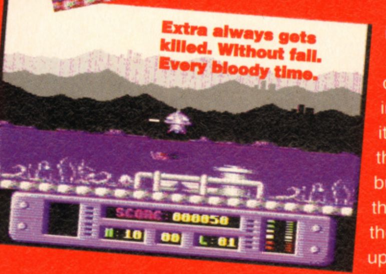
So this is a game that is definitely going to be pretty impressive when it arrives – it's taken a lot of its style from the old *Defender*-type games, but given a decent twist in the concept – you're the one who's sucking up people from the surface, while the aliens try to stop you. The gun is obviously very important though; you wouldn't stand a chance using the kind of weaponry the *Defender* aliens had. This time, you've got a nice meaty gun, and nothing can stop you.

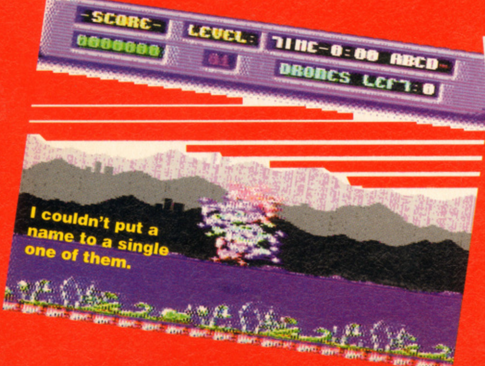
If you haven't played *Defender* before (it's possible), this is a game you should find quite amazing, and if you have played it, this is the version with all the stuff you wished was there originally. Either way, we don't think *Defensive* will fail – it's just darned good fun.

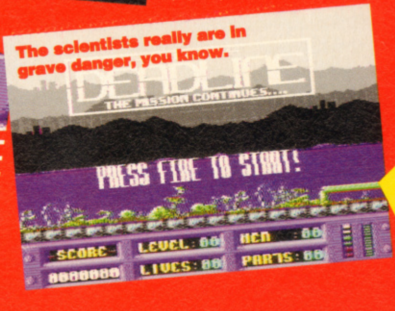

Okay then, it's time for a lesson in *Star Trek* scipt writing...


Away team beams down to planet.


Jim, Spock, Bones, Scotty, and extra arrive on planet.


Extra always gets killed. Without fail. Every bloody time.


I couldn't put a name to a single one of them.


The scientists really are in grave danger, you know.

VITAL STATISTIX

Game	Deadline
From	Visualise
Available	August
Format	Tape or disk
Contact	9 De Gray Road, Gaywood, Kings Lynn, Norfolk, PE30 4PH
Price	TBA

TRACER

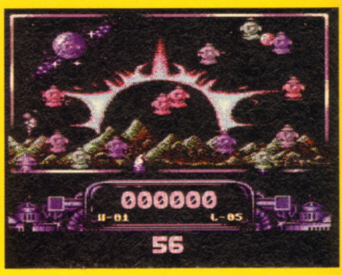
Strange marketing ploy: when you buy *Deadline* you will get the game's prequel free with it.

Y'see, *Deadline* author, Phil Nicholson, has previously written another game starring his favourite tracer droid, called, would you believe, *Tracer*. But the droid is about the only thing the two games have in common.

I won't mess about – what we have here is a shoot-'em-up. Aliens fly on, you're at the bottom of the screen, you fire, aliens die a laser cannon death, and you fly off again.

What makes this shoot-'em-up so special is the difficulty level. If you manage to survive the first level without losing a life, you can only be an alien yourself for one very good reason; this game looks to be really incredibly difficult.

There are two types of difficult games – the type you just give up on in total exasperation, and the kind that make you feel depressed at your lack of talent at until you work out some cunning plan which works, at which point you're higher than a kite and grinning like a Dave in a cake shop. *Tracer* definitely looks to be one of the latter variety – the aliens move in a mathematical way that manages to sweep almost the entire screen, except for a few areas. As you begin to blow them away one by one, different gaps appear, creating safe spots from which you can get to the rest of them.


Yup – all of those really low-down blobs are after you.

75% **An old game style but a new approach to gaming. It's fast, demanding, and incredibly good fun and extremely tricky.**

MEAN machine CODE

PART ONE

Programming in Basic is more restrictive than living on a student grant, but the prospect of learning machine language – with all those meaningless numbers and weird symbols – can seem daunting. But never fear, Jason Finch is here with a beginners' guide that's about as daunting as the Pepsi challenge.

WHAT IS... MACHINE LANGUAGE?

This seems like the most obvious question for a series like this. Machine language is a set of instructions that your computer understands without having to convert them into anything else. It is also a whole new way of thinking, so far as programming is concerned. Oh yes, forget about variables. The days of arrays and using every known letter of the alphabet have gone. Strings don't exist any more either. Say goodbye to your colons and your line numbers. The real programming is about to begin.

The two words 'machine' and 'language', when used consecutively, can make even the sanest of people quiver at the knees, and can send less hardy specimens crying for their mothers. I can even hear some of you screaming and frantically trying to turn the page already, but don't; it will be worth the pain, the frustration, and the mental torment in the end – mastering machine code opens up limitless possibilities as far as programming goes.

For months you have seen Basic loaders in Techie Tips, short programs full of DATA statements which load some machine code into memory and then do something rather stunning. By the time this series has finished you will know exactly why they all work and you will know how to change them to do what you want. And now, using either the assembler on this month's covertape or the Action Replay cartridge, you'll get the chance throughout this series to mess about with real machine language, or ML as it's known in the trade. For the moment I'll be referring to the AR cart when I'm dealing with how to run the machine language listings, as it's slightly more straightforward to see what's going on, but from next month, I'll be gearing the series towards using *6510+*. But feel free to experiment in the meantime.

WHAT IS... A MEMORY LOCATION?

Although I have covered memory locations in Dr Finch's Casebook, I'm going to repeat them because the concept of memory locations is fundamental to learning machine language.

Numbers are stored in memory locations; those numbers are called bytes. The different memory locations have different functions and depending on the numbers stored in them, do different things. Ensure you understand memory locations before you continue with the series. Memory locations are also used in ML to store values because you do not have variables.

THE APPROACH

It would help if you weren't just sat there like a lemon reading this with no idea why. So I'll tell you the aim of all this and how I'm going to approach it. The aim is to get you programming in ML from day one; that's simple. I'll do it by telling you about the commands and the different ways of using the commands. I'll tell you about the concepts involved and about different memory locations. I won't assume you know anything about this type of programming at all; I won't assume you've ever programmed a computer at all before, although I will make reference to Basic. I won't bore you with pointless details about hardware, about the CPU and about other complicated issues that are of little relevance to the get-your-hands-in-and-do-it approach that I'm going to take. The deal is that I babble and give examples, and you listen and test out the examples I give. Fair enough, yes?

Cor, look at the memory locations on that!

YOUR FIRST TIME

The first time you do anything is always the worst time because you have to learn a load of things before you can even begin to do anything constructive. But hang on in there. It might seem a bit an uphill struggle now, but persevere – the ecstasy of printing your name on the screen in Machine Language comes a close second to eating a really good pizza (*er, yes, okay, I'll have to take your word on that on, – Dave*).

In later months you'll be able to refer back to the 'What is ...?' sections and easily find what

WHAT IS... HEXADECIMAL?

It's even more complicated than binary, basically. Hexadecimal is a number system that uses the numbers 0 to 9 and the letters A to F. Eh? Yes indeedy, letters are involved as well. The following table gives a conversion of normal (decimal) and hex numbers. We'll use a dollar ($) sign to show a hex number (it's the standard way).

Dec	Hex	Dec	Hex	Dec	Hex	Dec	Hex
0	$0	4	$4	8	$8	12	$C
1	$1	5	$5	9	$9	13	$D
2	$2	6	$6	10	$A	14	$E
3	$3	7	$7	11	$B	15	$F

You see, although 'hexadecimal' has got more syllables than there are letters in most words (well the kind of words you get in *The Sun*, anyway), it's not all that complicated. Decimal 16 is hex $10, and you carry on counting from there. You can use hexadecimal without actually understanding how numbers are converted between it and decimal, assuming you have either a calculator with that function, a cartridge with it or a nifty little program like the *HEX VEX* one that I listed in Techie Tips a short while back. Hex is used merely because it is convenient; single byte numbers are represented by two 'hex digits' and double byte numbers are represented by four.

WHAT IS... A MACHINE LANGUAGE PROGRAM?

A machine language program is a list of instructions that is stored in memory from a particular memory location onwards. For example, you might start a Basic program at line 10; with a ML program you may start it at address 49152. This is a convenient memory location on the C64 and is $C000 in hex.

you're looking for. The main fun will begin towards the end of this first part and by which time you'll have written your very first machine language program. It would help if you had an Action Replay cartridge – and I'm assuming you have one – purely for its machine language monitor, though. Most utility cartridges have monitors, so be prepared to be flexible if you don't actually own an AR cartridge. I'll also be making reference to things out of Dr Finch's Casebook which I hope you have been following (*if not, well there are back issues available, see page 34 – Ed*).

Operator
Operand

THE FUN BEGINS

Okay, people, hang on to your seats because the fun is about to begin. You've read all the 'What is ...?' bits, you've read all the relevant Dr Finch's Casebook stuff, now you're ready to begin.

In ML, a load is an LD and a store is an ST. You follow this with the register name that you want to load from or store to. So LDA, LDX, LDY and STA, STX, STY are all valid ML instructions. Loads need something to load and stores need somewhere to store things. Imagine you want to load the number 0 into the accumulator (the A register). In Basic you'd do A=0. Decimal 0 is hex $00, but because we want the NUMBER 0 and not MEMORY LOCATION 0, we put a hash sign before it: #$00. This is the operand (see the What is...? box on operators and operands with the brilliant accompanying picture).

The instruction to load something into the accumulator is LDA (LoaD into the A register). So **`LDA #$00`** is the first instruction. Wow, we've actually got a machine language instruction here! What about storing? Well STA seems reasonable (STore the A register) but you need to specify somewhere to store it. We give the instruction a memory address as the operand.

WHAT IS... BINARY?

If you haven't been following Dr Finch's Casebook then you have committed the greatest of sins, you haven't learned about binary. Binary is a number system that uses only 0s and 1s. The following table gives a conversion of normal (decimal) and binary numbers. We'll use a percent (%) sign to show a binary number.

Dec	Bin	Dec	Bin
0	%0000	1	%0001
2	%0010	3	%0011
4	%0100	5	%0101
6	%0110	7	%0111
8	%1000	9	%1001
10	%1010	11	%1011
12	%1100	13	%1101
14	%1110	15	%1111

WHAT IS... AN OPERATOR AND AN OPERAND?

An operator is a thing that operates; it carries out some particular job. An operand is the thing that is operated on. When you get a jar of coffee off a shelf, you are the operator. The coffee is the operand. Referring to things in computer-speak, the act of getting the coffee is the, 'loading' and is split into knowing what you want – the coffee (the operand) – and you thinking about reaching for it (the operator).

53,280 is $D020 in hex, and controls the border colour. So **`STA $D020`** could work, right?

The final thing we need to do is stop the program (it does help). In Basic this is done automatically, or with an END statement; in ML you use an instruction called RTS (ReTurn from Subroutine) to get you out of a program.

HANDS-ON TIME

You want to write a machine language program consisting of the following three commands (yes you do, you know you do, go on admit it):

```
LDA #$00
STA $D020
RTS
```

In order to do this, you must 'assemble' the program, one instruction at a time. The computer needs to know where you want to put this program in memory, and the most common place for beginners is 49,152, or $C000 in hex. The Action Replay monitor must be told the start address for assembling an instruction. It will then prompt you for the next instruction until you press Return without giving an instruction.

WHAT IS... A REGISTER?

Good question, that one. A register is a place where things are stored, or registered. In machine language you have three registers, called the accumulator, the X-index and the Y-index; A, X and Y for short. Each register can store a one byte number, that is a number from 0 to 255.

ASSEMBLING

Get your monitor up and running and enter `A C000 LDA #$00` and hit Return. If you've done it right, you should see this on your screen:

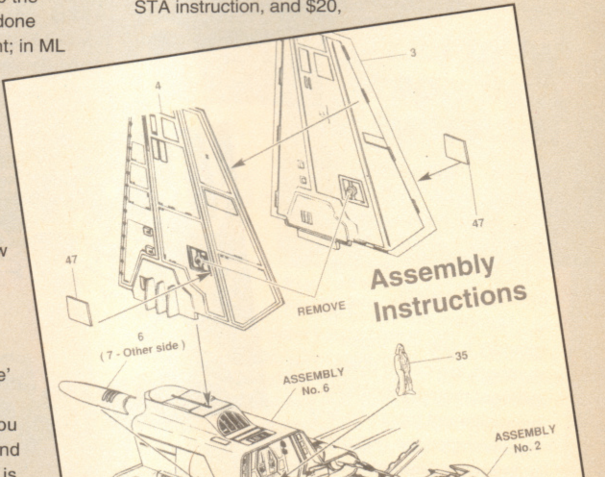
```
.> C000 A9 00      LDA #$00
.A C002
```

Now, where the cursor is flashing, enter STA $D020 and press the Return key, now enter RTS and press the Return key twice. You should have this on your screen now:

```
.> C000 A9 00      LDA #$00
.> C002 8D 20 D0   STA $D020
.> C005 60         RTS
.> C006
.
```

You have now assembled a three-line machine language program; it has one load instruction, one store instruction, and one return. The numbers down the left are memory locations and the numbers immediately to their right are the values stored at those locations. So, $A9 (169 in decimal) is stored at $C000 (49152 in decimal), $00 is stored at the next location, $8D at the next, then $20, $D0 and finally $60 is stored at $C005.

These all mean something (*and I thought they were just there to confuse me – Dave*). $A9 is the code for our particular LDA instruction, $00 is the operand, of course. $8D is the code for our STA instruction, and $20,



Bad visual gag alert! Bad visual gag alert!

$D0 is the two-byte address. You should remember this notation from the 'What is a byte?' question. The $60 is the code for RTS. You do not need to remember those codes; they are the raw machine code – the same as the values that are POKEd into memory when you use a Basic loader to store code.

RUNNING

To run that machine language program you use the G command, for 'Go'. So enter G C000 and be impressed! Okay, so the border has turned black. You're not particularly excited, I can tell. Perhaps we can turn the background black as well to make you a bit more happy. With the cursor flashing after a dot, enter `A C005 LDA #$00` and press the Return key. Now enter `STA $D021`, press Return again, enter RTS and press Return twice. You should see:

```
.> C005 A9 00     LDA #$00
.> C007 8D 21 D0  STA $D021
.> C00A 60        RTS
.> C00B
.
```

Enter `G C000` again and the whole screen should go black. Why does that happen? (You've tripped over the power lead? – Dave) Well, you take the number 0 and you put it into the accumulator. You then take the number in the accumulator and store it at memory location 53,280. That changes the border colour the same way as `POKE 53280,0` would do in Basic. The same occurs with the second load and store; you take the number 0 again and put it into the accumulator. You then store that at location 53,281, changing the background colour. Check out the colour codes in the table below and change the $00 to experiment.

WHAT IS... A MACHINE LANGUAGE MONITOR?

A machine language monitor, or MLM, is a program that allows you to enter and view machine language programs. They often do other things as well, but they are secondary. The Action Replay cartridge has a MLM built into it which can be accessed from Basic by either pressing F8, entering MON and pressing the Return key or select MON from the option screen that comes up when when you press the smaller button on the back. You should see something like this come up on your screen:

```
ADDR AR XR YR SP 01 NV-BDIZC
.;E37B 00 FF 00 FB 37 00000000
.
```

The cursor will be flashing next to the dot – you have entered the realm of ML. No-one can hear you scream! I suggest you read the MLM section of your manual to work out exactly how to use it. For AR owners, enter X and press Return to get back to Basic.

$00 black	$08 orange
$01 white	$09 brown
$02 red	$0A pink
$03 cyan	$0B dark grey
$04 purple	$0C medium grey
$05 green	$0D light green
$06 blue	$0E light blue
$07 yellow	$0F light grey

DISASSEMBLING

As Newton discovered, every action has its opposite and equal reaction, and the opposite of assembling is disassembling, you probably won't be too surprised to hear. Assuming that you've been diligently following all the instructions I've been giving you so far (well I like to think there is some purpose in my life) within your AR monitor, enter D C000 C005 and you should see:

```
.D C000 C005
.> C000 A9 00     LDA #$00
.> C002 8D 20 D0  STA $D020
.
```

This should not come as a great shock to you because that is what you originally entered (if, as I said, you've been following my instruction, otherwise god knows what you might get - some rude error message most likely); this is part of your machine language program.

You can go up and edit any of the lines, in exactly the same way you would with a Basic program. For example, move the cursor over the second 0 of the `LDA #$00` instruction, press 2 and then Return. Press Return twice more to get back to the dot prompt. Now type in `G C000` again and you'll see the effect. Ah, the wonders of modern science. Okay, it's not exactly ground-breaking stuff, and your Gran is the only person who'll say she's impressed (and not even she means it), but, come on, what do you expect after one introductory lesson – *Mayhem In Monsterland*? You've got to walk before you can run. From little acorns do mighty oaks grow. One small step for... (*yes, thank you, Jason, see you next month – Dave*).

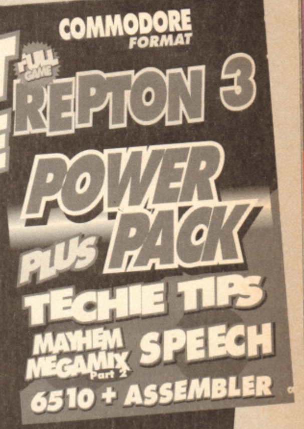
WHAT IS... A BYTE?

Apart from being the cause of many a hilarious joke in early 80s sitcoms (in conjunction with the many culinarily named computers there were about then), what is a byte? Your computer has 65,536 different memory locations; think of them as boxes into which you can place bytes of data. 53,280 is a memory location that just happens to control the border colour; POKE 53280,0 sets it to black. One byte can be stored at each location. A byte, on the C64, is a number between 0 and 255 inclusive. 255 in decimal is %11111111 and in hex it is $FF.

A two-byte number is one which takes up two bytes in memory (shocker); numbers from 256 up to 65,535 need two bytes – a 'low' byte and a 'high' byte. To get the final number you take the high byte, multiply it by 256 and add the low byte. So, for example, 53,280 is stored with high byte 208 and low byte 32 because 208 x 256 + 32 = 53,280. In your C64 they are stored the other way around, to be confusing, so the number 53,280 would be stored as 32,208 in memory. In hex, these are $20 and $D0. And 53280 in decimal is $D020 in hex.

Check out the similarity with the high byte and the low byte conversions. That's why hex is so convenient. It's a lot easier to see that the high byte of $D020 is $D0 than it is to work in decimal and say the high byte of 53,280 is 208.

CHECK OUT THE COVETAPE



You may well be asking yourself that very same question – if you want to learn machine code quickly and easily, you'll need an assembler. This is a program that turns the assembly language you type into the numbers that the C64 recognises as machine code, and acts on.

If you want an assembler, you've got one – load up *6510+* from this month's covetape, and turn to the covertape pages for full instructions. And from next month all the listings and direction in Mean machine Code will be written with 6150+ in mind. We're just too good to you, sometimes.

WHAT IS... LOADING AND STORING?

Imagine you are in a supermarket and one of the things you want is a loaf of bread. You pick up the bread and you put it in your trolley (*hang on, I can feel an extended metaphor coming on here – Dave*). This is loading and storing. Loading is the action of getting the bread, and storing is the action of putting it in the trolley. The same happens in Basic when you do `POKE 53280,0`. The computer 'loads' something or other with the number 0 and then 'stores' it at location 53,280. A simple analogy for the simplest of operations.

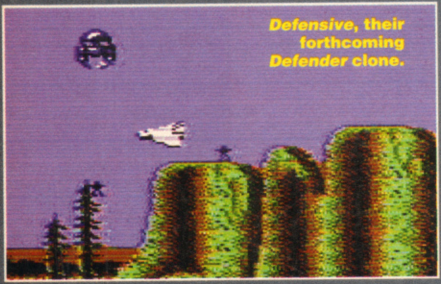
NEXT MONTH

Before next month I want you to make sure you have read your MLM manual, or the relevant section of your Action Replay booklet. I'll explain about addressing modes, give more details on loading and storing, show you how to use the other registers, how to display text on the screen and how to use the compare instructions. You'll get more chance to get your hands dirty, as it were, because the background information has been covered here.

SHOCK TREATMENT

We've seen the future of the C64, and it's called The Electric Boys. Er, well, we've seen previews of a couple of their games and they looked pretty darned horny. But as Simon found out when he talked to head Boy Russ Michaels, set-ups like the Electric Boys' could be exactly the kind of future the C64 needs.

Suddenly, there seems to be a lot happening on the C64 scene. Who cares that the major software houses aren't producing C64 games any more? Let's face it – a lot of the stuff they've released in the last two years has been pretty dire. What the C64 scene needs now, and, it seem, it's getting, are games written by people who really want to write for the C64, not programmers who are press-ganged into porting average games across from other formats.


Defensive, their forthcoming Defender clone.

There are a number of new and interesting software houses exploding onto the scene throwing shrapnel around in the form of fun, high quality and carefully produced software – software that has been specifically written for the C64. One of these companies is Electric Boys. Currently they've got three game projects in the pipeline; *Defensive* (previewed on page 22), a *Flashback*-inspired shoot-'em-up and a *Captain America* game. We spoke to frontman Russ Michaels about the monster he's hoping to create…

The frontman himself, Russ.

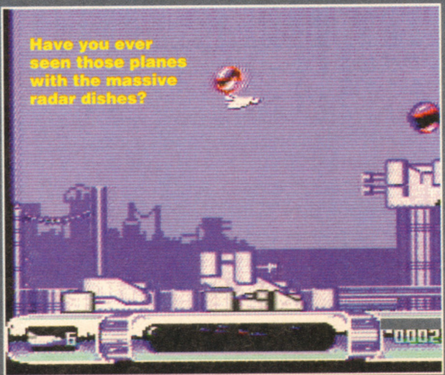
How did the Electric Boys PD library originally start?

Originally I used to be in a PD group myself, actually called Electric Boys, writing demos and utilities. I've actually written a lot of the stuff that's still going around today. I then left the scene for a couple of years but when I bought a new C64 I decided to get back into it again, selling software and running a library, to do something a bit more constructive than just writing demos, such as selling budget software.

What budget titles did you originally sell?

When I got back into the scene and got my second machine, I got quite a lot of software with it, and it seemed like a good idea to set up a software library – there were a hell of a lot of people looking for old games that weren't available, writing into magazines and complaining that the company who originally sold the game doesn't exist any more. In the end, all they could do was send a small ad into a magazine and hope something turned up.

What I decided to do was collect software from shops that had stopped selling C64 software (such as Boots), computer fairs, car boot sales and pretty much anywhere else, and sold them off again myself. I'm still selling budget games for £1.99 per tape, and anyone can get a catalogue by sending off to the Electric Boys address.


Have you ever seen those planes with the massive radar dishes?

Frank Svendson, another Boys blokey, yesterday.

So what about these new projects you're working on?

I got sick of the excuses that people were making for the games they were producing, such as *Street Fighter 2* suffering because of the machine's limitations – it's a total cop-out, as *Street Fighter 2* could have been done a lot better than it actually was. Even *Mayhem* seemed over-hyped – it's just the new standard for the C64. That type of programming quality has been around in demos for ages now, and it just needed to be used properly in a game.

We can do 'hold and interlace' graphics now, which is up to Amiga standard, even FLI graphics giving 16 colours per character. *Flashback* will work because it'll use these techniques. We just thought it was about time someone turned out these decent quality games, and decided we were the people to do it.

Steve Carter, doing some deliveries and getting a little bit stressed.

Aren't you worried about any licensing problems with Flashback?

If we do have any problems with the companies concerned over a C64 version, all we'll do is vary the game slightly, making sure it's not too much like the original. We'll get in touch with the company that originally wrote *Flashback*, and see what they think. If they don't like it, we will definitely vary the layout, but it's the gameplay, the idea of the game and the quality of the graphics that make it what it is – something of the same standard would still be good, even if it's laid out differently.

We're also planning to do a *Captain America* game – the whole superhero idea seems to have caught on quite well. Our *Captain America* won't be a copy of the Amiga version, because I didn't think it was especially good. We'll still use the same characters, but we'll be producing a completely different game.

Do you have any kind of release dates yet?

Not really. At the moment, we're still finishing off *Defensive*, an up-to-date remake of *Defender*. The original was just a horizontally-scrolling shoot-'em-up but we've added a lot, such as different planets that have to be saved in a certain sequence, different-looking terrains, and even the aftermath of nuclear disasters. It's another one of these concepts that the machine's advancements can make a lot of difference to, but still produce a classic game. There's never been a remake of *Defender*, though, as everyone copies the original without adding to it. We plan to take it a few steps further.

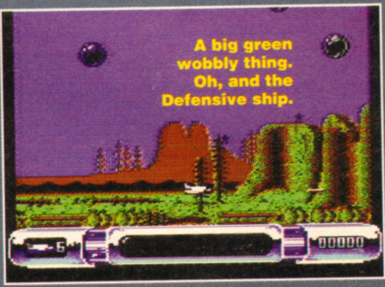
We plan to do the same kind of thing with the old Spectrum title *Jet Pac*, creating *Super Jet Pac*. We haven't quite decided whether it's going to have flip-screen, scrolling, or one-screen levels, but we'll definitely be bringing that out at some point.

Capt. America – will it be as good as we're hoping?

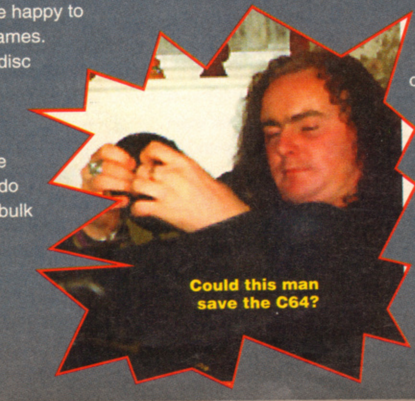
Will all the stuff you've got planned work well on tape? Surely a game like Flashback would be almost impossible to fit comfortably onto any sized tape?

We're not planning to release anything on tape – this is why we've formed a plan to get all of the people using tapes at the minute onto disc drives. The main problem with software is that everyone in Britain is a tape user, and there are some games that just won't work unless they're on disc. Most programmers can't be bothered to convert their work to tape anyway, because it means they can't put as much into their games. I've never been a tape user myself (I've always used discs), so I don't know a lot about tape loaders – we'd have to hire someone else to do all that tape stuff, so it's just not worth all that time and effort.

With games like *Flashback* or even *Defensive* where you've got a random level selection element, you can't use a tape – the levels would have to load in perfect sequence. There are a lot of people I know in the PD scene who are quite capable of writing games, and given the opportunity of not having to spend huge amount of time working on a tape version, they'd be quite happy to produce some very good games.


A big green wobbly thing. Oh, and the Defensive ship.

If enough people want disc drives, we can approach a company and try and sort something out. I've contacted a company in the States who're prepared to do some sort of deal so I can bulk order good hardware from them to sell over here at very low prices.


Could this man save the C64?

What kind of hardware are you thinking about?

Firstly, we want to sell modems for a bulletin board system we're planning to set up. If enough people would be interested in a PD bulletin board system we'd set one up – it has an obvious advantage over mail order PD because you don't have the cost of discs or postage and packaging. It would work with a system of buying download credits, roughly £1 for 2000 credits. This works out at about 2 discs worth of software for £1. Also, rather than buying a whole disc, you can just select individual programs, and mix and match whatever you like. Of course, anyone who's written anything can upload it into the system – we'll have all the normal bulletin board things, such as electronic mail, sysop chats, and all sorts of special areas.

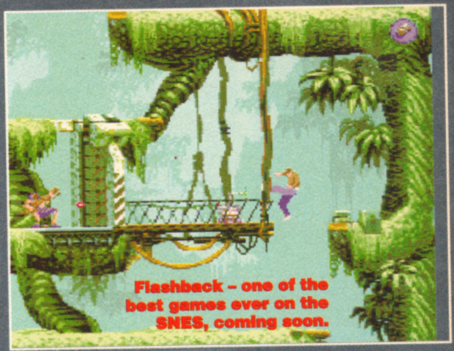
We'd also like to start importing 3.5-inch drives which obviously store a lot more than a normal 5.25-inch – these can hold up to 3.3MB, which is almost a mini-hard drive. It's a bit more expensive, but at £140 for a 1541 you could buy a high density 3.5-inch drive anyway. The other alternative is to get enough interested people together who'd want a 1541 for about £60 – we could approach a company with a stock of drives and say something like, "we've got 1,000 people here who want to buy a drive, so how about dropping the price?". At the end of the day, it'd be worthwhile to give the current tape users access to a lot of the software being produced – there is still a lot of stuff coming out in Germany and America that no-one sees over here because it's not available on tape, and that's a shame.

Emil Helldin, the group's musician

There are a number of disc magazines in Germany that come with games every month, but we don't see the magazine and we don't see the games. This is obviously software that could be imported into this country if everybody had disc drives. I've been speaking to them about crossing the software, so we're both selling our software in the other country, making a hell of a lot of software available in Britain again.

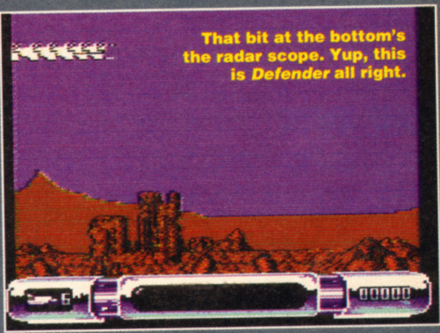
Finally, what do you think to the PD scene in Britain?

I think the PD scene is going over the top – anyone is coming along and starting a PD library. They're also stocking old software that dates back from the CompuNet days – they're not picking up new stuff when it comes out at copy parties or demo parties. These events happen fairly often, but not that many people go along, because they're usually organised amongst a group of friends. A lot of these companies just know one person with a few demos and utilities, copy the software and start another library, with nothing new to offer anyone.


Flashback – one of the best games ever on the SNES, coming soon.

Personally, I don't think any company could survive on PD alone – that's one of the reasons why we're doing all this extra stuff. We want to keep ahead of what's going on, and try to support the C64 for as long as possible.

Well there we have it – the future of the C64 is in the disc drive. Okay, so not everybody will want to shell out for one, but those that don't will be missing out on a hell of a lot of new and impressive software that'll put everything we've seen so far to shame. Meanwhile, we're looking forward to seeing a review copy of Flashback in the near future.


That bit at the bottom's the radar scope. Yup, this is *Defender* all right.

GET IN TOUCH

So you want to be a part of this C64 revolution? Then get in touch with The Electric Boys now to tell them either:

a) Yes, you want to buy a new disk drive at a ridiculously low cost.
b) Yes, you'd buy their games,.
c) Yes, they should form a heavy metal band.
d) Yes, there was a very bad heavy metal band called The Electric Boys (but we won't hold that against them).

The address is: The Electric Boys, 917B Brighton Road, Purley, Surrey, CR8 6SZ.

SECRET OF SEUCKCESS

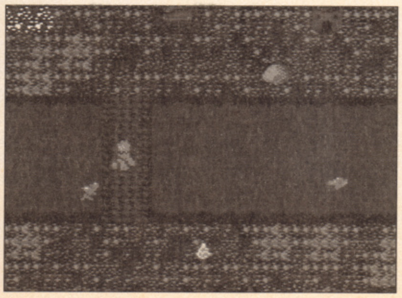
If you've got the Shoot-'Em-Up Construction Kit you've got a programming tool that makes writing vertically-scrolling blasters a doddle. But getting it to produce really good vertically-scrolling blasters takes more skill. Stick with Jon Wells, though, and you'll develop the skill.

Part 3

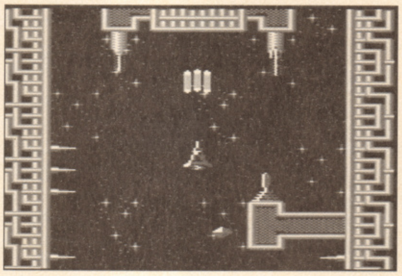
Blimey, I bet you're thinking, look at all those figures. Let's skip this. But hold on, because these tables are you key to complete control when it comes to setting up in-game features in *SEUCK* games. This month, we're going to look at the memory map which features, as well as the locations of some large chunks of game code, a few in-game values you'll find within *SEUCK*. For instance, if you wanted to change the amount of lives player one has, you'd just POKE the new value into the memory address you'll find in the following tables.

There are a few values and locations that won't make sense immediately, but we'll take a look at them over the coming months.

Description	Hex m.code	Decimal BASIC
Spare memory	$0400 to $0900	1024 to 2304
Map background scroll data	$0900 to $1900	2304 to 6400
$80 or 128 block colours	$1900 to $1980	6400 to 6528
Spare memory	$1980 to $1a00	6528 to 6656
$80 or 128 blocks data	$1a00 to $2680	6656 to 9728
Scrolling machine code	$2680 to $2c80†	9728 to 11392
Main objects pointers	$2c80 to $3204	11392 to 12804
SEUCK title screen	$3204 to $33e0	12804 to 13284
Enemy attack wave patterns	$33e0 to $4000	13284 to 16384
Main game machine code	$4000 to $6580	16384 to 25856
SEUCK editor machine code	$6580 to $b680	25856 to 46720
Game and sound fx data	$b680 to $c000	46720 to 49152
Game sprite graphics	$c000 to $e000	49152 to 57344
SEUCK editor text code	$e000 to $e800	57344 to 59392
Game screen page 1	$e800 to $ec00	59392 to 60416
Game screen page 2	$ec00 to $f000	60416 to 61440
Scroll + score panel code	$f000 to $f400	61440 to 62464
SEUCK editor charsets	$f400 to $f800	62464 to 63488
Game background charset	$f800 to $fff8	63488 to 65528



Now what you want on a bridge like this, you see is a dirty great gun that sprays bullets everywhere, but that programmer person has just left you with a peashooter. "A challenge," he calls it.



***Daedalus* was a rather nifty *SEUCK* game we featured back in issue 31, which incidentally is still available. Check out Back Issues on page 35 for details of how to order it.**

There are also some very important locations, dealing with the controls of the two players:

Description	1up hex to dec	2 up hex to dec
Player enabled	$40af to 16559	$40c2 to 16578
Amount of lives	$40ad to 16557	$40c0 to 16576
Speed of player	$40a6 to 16550	$40b9 to 16569
Player main colour	$2c93 to 11411	$2ccf to 11471
Amount of bullets	$40a7 to 16551	$40ba to 16570
Bullet speed	$40a9 to 16553	$40bc to 16572
Directional fire	$40a8 to 16552	$40bb to 16571
Bullet duration	$40aa to 16554	$40bd to 16573
Character collision	$40ac to 16556	$40bf to 16575
Die or stop 0 or 1	$40ab to 16555	$40be to 16574
Extra man at 10,000	$40ae to 16558	$40c1 to 16577
Horizontal start position	$40a3 to 16547	$40b6 to 16566
Horizontal 256 bit point	$40a4 to 16548	$40b8 to 16567
Vertical start position	$40a5 to 16549	$40b7 to 16568
Play area up stop	$409f to 16543	$40b2 to 16562
Play area down stop	$40a2 to 16546	$40b5 to 16565
Play area left position	$409d to 16541	$40b0 to 16560
Left 256 bit point	$409e to 16542	$40b1 to 16561
Play area right position	$40a0 to 16544	$40b3 to 16563
Right 256 bit point	$40a1 to 16545	$40b4 to 16564

Some other main *SEUCK* machine code locations are as follows:

- The players score pointers for player one are a 6-digit byte formation from hex $5EA3 to $5EA8 or decimal 24227 to 24232.
- And for player two they are are hex $5EA9 to $5EAE or decimal 24233 to 24238.

To convert this into basic, you can use the following of routine:

```
1 S1 = 0: S2 = 0: FOR A = 24227 TO 24232
2 READ B: S1 = S1 + ( PEEK (A) * B )
```

COMPLETELY DEBUGGED

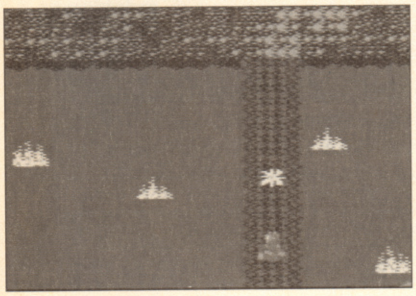
I've sorted out that reset bug – the one that corrupts the background graphics with characters 166 to 169 (a right pain). These new *SEUCK* loading hack listings are again for both tape and disk users, and will stop the characters from being corrupted. These should also, from now on, be used instead of the original part one hacks. Now for those listings:

```
1 REM ** NEW S.E.U.C.K TAPE RESET HACK **
2 C=0: FOR A = 49152 TO 49273: READ B
3 POKE A,B: C=C+B: NEXT A: PRINT CHR$(5);
CHR$(147)
4 IF C <> 14152 THEN PRINT "DATA ERROR!";: GOTO 7
5 PRINT "SAVE HACK FOR FUTURE USE!": PRINT
6 PRINT "TYPE SYS 49152 TO START..";
7 PRINT CHR$(154): END
10 DATA 162, 0, 189, 16, 192, 157. 0, 1, 232
11 DATA 224, 105, 208, 245, 76, 0, 1, 32, 86
12 DATA 245, 169, 16, 141, 87, 4, 169, 1, 141
13 DATA 88, 4, 76, 252, 3, 169, 76, 141, 217, 68
14 DATA 169, 16, 141, 218, 68, 169, 96, 141
15 DATA 219, 68, 141, 99, 66, 169, 41, 141, 98
16 DATA 66, 169, 53, 133, 1, 141, 156, 68, 162
17 DATA 40, 189, 66, 1, 157, 16, 96, 189, 48
18 DATA 253, 157, 224, 231, 202, 16, 241, 76
19 DATA 72, 64, 169, 1, 208, 3, 76, 6, 69, 120
20 DATA 169, 55, 133, 1, 169, 0, 141, 32, 208
21 DATA 169, 11, 141, 17, 208, 76, 226, 252
22 DATA 162, 32, 189, 224, 231, 157, 48
23 DATA 253, 202, 16, 247, 76, 58, 68, 189
```

And the disk version…

```
1 REM ** NEW S.E.U.C.K DISK RESET HACK **
2 C=0: FOR A = 49152 TO 49281: READ B
3 POKE A,B: C=C+B: NEXT A: PRINT CHR$(5);
CHR$(147)
4 IF C <> 14836 THEN PRINT "DATA ERROR!";: GOTO 8
5 PRINT "SAVE HACK FOR FUTURE USE": PRINT
6 PRINT "TYPE SYS 49152 TO START.."
7 PRINT "THEN LOAD GAME AS NORMAL";
8 PRINT CHR$(154): END
10 DATA 162, 0, 189, 16, 192, 157, 0, 1, 232
11 DATA 224, 113, 208, 245, 76, 0, 1, 169, 11
12 DATA 141, 40, 3, 169, 1, 141, 41, 3, 96, 169
13 DATA 24, 141, 77, 4, 169, 1, 141, 78, 4, 76
14 DATA 237, 246, 169, 76, 141, 217, 68, 169
15 DATA 16, 141, 218, 68, 169, 96, 141, 219, 68
16 DATA 141, 99, 66, 169, 41, 141, 98, 66, 169
17 DATA 53, 133, 1, 141, 156, 68, 162, 40, 189
18 DATA 74, 1, 157, 16, 96, 189, 48, 253, 157
19 DATA 224, 231, 202, 16, 241, 76, 72, 64, 169
20 DATA 1, 208, 3, 76, 6, 69, 120, 169, 55, 133
21 DATA 1, 169, 0, 141, 32, 208, 169, 11, 141
22 DATA 17, 208, 76, 226, 252, 162, 32, 189
23 DATA 224, 231, 157, 48, 253, 202, 16
24 DATA 247, 76, 58, 68, 189
```

It's always a good idea to save your listing once you've typed it in (but before you run it), as we don't want to type them out all over again do we? You can still reset the *SEUCK* game by pressing RESTORE and restart with SYS 16595 – just as before, though. These hacks are also completely compatible with all the other listings from the previous *SEUCK* features, by the way.



In a situation like this you can wave goodbye to any idea of getting on the high score table. It's a shame, when someone's gone to so much trouble writing one.

```
3 S2 = S2 + ( PEEK (A+6) * B ): NEXT A
4 PRINT "PLAYER 1 = "; S1: PRINT "PLAYER 2 = "; S2
5 DATA 100000,10000,1000,100,10,1
```

When using this program, S1 and S2 refer to the two players' scores. You could use these figures to calculate a highscore table if you wanted to, using something a little bit like this:

```
1 B = 9: DIM H1(10),N1$(10): REM * For player 1 *
2 IF S1 > H1(B) THEN B = B - 1: goto 2
3 B = B + 1: FOR A = 9 TO B STEP -1: H1(A)=H1(A+1)
4 N1$(A) = N1$(A+1): NEXT A
5 H1(B) = S1: N1$(B) = NAME$
```

This might be a little difficult to follow, so let's go through the program line by line:

1 Here we set up 10 different scores and the players' names.

2 Next, we compare your score with the old table, to find out whether the next score in the table is higher, lower or the same as the new score (lower, usually, in Dave's case).

3&4 This line moves the relevant scores and names down the list to make space for the new one.

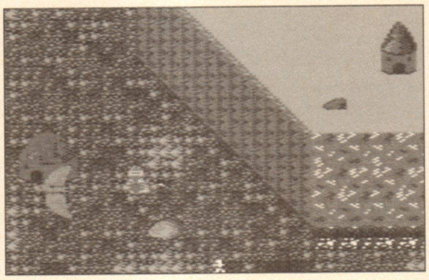
5 Finally, you need to store the new score and player name under NAME$ in the table. This name would be obtained by asking the user to enter it (as with just about every other game ever – what do you expect them to do, communicate with the game telepathically?).

The original scores and corresponding names would have to be set with DATA statements, not forgetting the DIM statements in line 1 to allow room for storing them in a dimensioned variable. If this seems a little scary or complicated, don't fret – we'll be covering high scores in a little more depth next month. 'Til then…

EXTRA IMPORTANT *SEUCK* ADDRESS LOCATIONS

Description	Hex$ machine code	Decimal in BASIC
Score player 1	$5ea3 to $5ea8	24227 to 24232
Score player 2	$5ea9 to $5eae	24233 to 24238
Score clear	$4426 to $443a	17446 to 17466
Score sprite plot	$5a25 to $5ad5	23077 to 23253
Player 1 lives plot	$5ad5 to $5b3d	23253 to 23357
Player 2 lives plot	$5b3d to $5ba5	23357 to 23461
Score add routine	$5ba5 to $5c09	23461 to 23561
Clear and set sid chip	$5c09 to $5c33	23561 to 23603
Sound effects initialise	$5c33 to $5c94	23603 to 23700
Sound effects play	$5c94 to $5d62	23700 to 23906
Player 1 char collision	$4a8b to $4af8	19083 to 19192
Player 2 char collision	$4d9a to $4e07	19866 to 19975

I hope you find these addresses useful, as they follow up the rest of the main addresses. If you are having trouble with any aspect of this feature, you can write to Secret of *SEUCK*cess at the usual address. You know, the one that starts, Secret of *SEUCK*cess, *Commodore Format*, and ends, 30 Monmouth Street, Bath, Avon BA1 2BW. In a couple of months we're planning a special instalment devoted specifically to readers' queries, so now's the time to write in with your SEUCK queries.



***Monster Mash*, it was a graveyard smash apparently. What d'ya mean what am I on about? Don't you now anything about classical music?**

MONSTER MASHED

By the way, did any of you get issue 40 with *Monster Mash* on the covertape? If so you'll be glad to know that you can use the hack listings and routines from the first three Secret of *SEUCKcess* instalments on the program, as well as all listings in the future.

MULTIPLEX

Dept CFF, 3 Middleton Business Park, Middleton on Sea, West Sussex PO22 6HS
Telephone 0243 587089 24 Hour Credit Card Order Line. Access/Visa

Repairs

C64 Repair	19.95
C+4/C16 Repair	19.95
1541 Repair	29.95
C 128 Repair	29.95

Spares

Genuine C64 Power Supply	14.95
Replacement C2N Plug and Lead	3.95
C64 User Manual	2.95
C64 Programmers Ref. Guide	4.95
RF Lead	1.95
Printer/Disk Drive Lead. (6 Pin Din)	1.95
Commodore 1541 II Disk Drive. Reconditioned - 3 months guarantee	69.95

CHIPS (Pulls from New PCB's)

6510 MPU	3.49
6526 CIA	3.49
Sound Chip (SID)	3.99
Video Chip (VIC)	5.99

SOFTWARE

C64 Cartridge. Terminator 2	8.95
C64 Cartridge. Flimbos Quest, Klax, Int Soccer	8.95
Afterburner C64 Cassette	2.95
Inside Outing C64 Cassette	1.95
Mercenary C64 Cassette	1.95
Power Drift (Unboxed) C64 Cassette	1.95
Terra Cognita. C64 Cassette	1.95
Or all Five Cassettes above for only	8.95

Burnt out C64?? Have other Companies Refused the Repair??
Let us replace the complete PCB for £29.99
(NB Excludes serial, user and cartridge ports.)

Carriage to you included on all orders and repairs.
All repairs carry a three month guarantee.

PUBLIC DOMAIN TAPES FOX P.D. PUBLIC DOMAIN TAPES

THE BIGGEST AND BEST PD COMPILATION ON TAPE ACCEPT NO IMITATIONS

40 PD Games 1	41 stunning games all on one tape!
40 PD Games 2	Yet more games! Every type you could want and more!
Utility Tape 1	A collection of brilliant PD utilities for your 64
Utility Tape 2	Includes many programs previously unavailable to tape users
Alf Yngve Games	24 Titles now including new music and intros!
PD Sampler No1	A mega collection of games, utilities & demos!

NEW SUPER LOW PRICES

Any one of the above £3
Any two of the above £3.25 each
Any three or more £3.00 each

WHY BUY YOUR PD FROM US?

Guaranteed loading with full return service
All prices include postage and packing
Immediate 1st class despatch on all orders
Exclusive/New titles

FREE CATALOGUE

To receive your free catalogue send one first class stamp to the address below

Please make PO/Cheques payable to FOX P.D. and send to :-
FOX PD, 6 Sturton Avenue, Goose Green, Wigan WN3 6SZ

Tel: 0463 240168

EVERGLADE

Tel: 0463 240168

68 TELFORD ST, INVERNESS, IV3 5LS

▼C64 Budget Software▼

3D Pool	£3.95
Acrojet	£3.95
Action Fighter	£3.95
Airborne Fighter	£3.95
American 3D Pool	£3.95
Armalyte	£3.95
Arnie 2	£3.95
Barbarian	£2.95
Barbarian II	£3.95
Bubble Bobble	£3.95
California Games	£3.95
Captain Dynamo	£3.95
Championship Wrestling	£3.95
Chase H.Q	£3.95
Crackdown	£3.95
Creatures	£3.95
Dragons of Flame	£3.95
F-16 Combat Pilot	£3.95
F-15 Strike Eagle	£3.95
Final Fight	£3.95
Flimbo's Quest (Disc)	£5.95
Flimbo's Quest	£3.95
Footballer of the Year II	£3.95
Forgotten Worlds	£3.95
Fun School 2 6-8 years	£3.95
Fun School 2 <6 years	£3.95
Fun School 2 >8 years	£3.95
Games Winter Edition	£3.95
Gazza's Super Soccer	£3.95
Ghouls & Ghosts	£3.95
Go for Gold (Disc)	£5.95
Go for Gold	£3.95
Graham Souness Soccer Manager	£3.95
Gunship	£3.95
Hawkeye	£3.95
Heroes of the Lance	£3.95
Heroquest	£4.95
Hook (C64c)	£3.95
Hudson Hawk	£3.95
Hunters Moon	£3.95
Indy Jones & Last Crusade	£3.95
Italia '90	£3.95
Italy 1990 (Disc)	£5.95
Italy 1990	£3.95
Jack Nicklaus Golf	£3.95
Killing Machine	£3.95
Last Duel	£3.95
Last Ninja (C64c)	£3.95
Lotus Espirit-Turbo Challenge	£3.95
Magicland Dizzy	£3.95
Manchester United	£3.95
Manchester United - Europe	£3.95
Mercs	£3.95
Microprose Soccer	£3.95
Mini Office 1	£2.99
Moonwalker	£3.95
Multimixx 1	
Leaderboard/W.C Leaderboard/	
Leaderboard Tournament	£4.95
Multimixx 2	
Raid/Beachhead/Beachhead II	£4.95
Multimixx 3	
Street Fighter/Bionic Commando/	
1943	£4.95
Multimixx 4	
Gauntlet/The Deeper Dungeons/	
Gauntlet II	£4.95
Multimixx 5	
Monty on the Run/Jack the Nipper II/	
Auf Weidersehen Monty Myth	£3.95
New Zealand Story	£3.95
Night Shift	£3.95
Night Shift (Disc)	£6.95
Outrun	£3.95
Outrun Europa	£3.95
Pictionary	£3.95
Pirates	£4.95
Pirates (Disc)	£7.95
Pitfighter	£3.95
Pro Tennis Tour	£3.95
Project Stealth Fighter	£4.95
Quattro Fantastic	£3.95
Quattro Fighters	£3.95
Quattro Megastars	£3.95
Quattro Skills	£3.95
Rainbow Islands	£3.95
Rick Dangerous	£3.95
Rick Dangerous 2	£3.95
Road Blasters	£2.95
Robin Hood Legend Quest	£3.95
Robocod	£3.95
Robocop - James Pond 2	£3.95
Rodland	£3.95
Shadow Dancer	£3.95
Silent Service	£3.95
Slicks	£3.95
Slightly Magic	£3.95
Smash T.V	£3.95
Solo Flight	£3.95
Spellbound Dizzy	£3.95
St Dragon	£3.95
Streetfighter	£3.95
Streetfighter 2	£3.95
Streetfighter 2 (Disc)	£6.95
Strider	£3.95
Strider 2	£3.95
Strider 2 (Disc)	£5.95
Stunt Car Racer	£3.95
Summer Camp	£3.95
Super Monaco G.P	£3.95
Super Off Road	£3.95
Super Scramble	£3.95
Super Space Invaders	£3.95
Swiv	£3.95
Sword & Sorcery	£3.95
Technocop	£3.95
Terminator 2	£3.95
Test Drive II - The Duel	£3.95
Test Master	£3.95
The Addams Family	£3.95
The Simpsons	£3.95
Thunderblade	£3.95
Tiger Road	£3.95
Treasure Island Dizzy	£3.95
Treble Champions	£3.95
Trivial Pursuit	£3.95
Turbo Charge	£3.95
Turbo Outrun	£3.95
Turrican	£3.95
Turrican 2	£3.95
Tusker	£3.95
Ultimate Golf	£4.95
Vendetta	£3.95
Vigilante	£3.95
Weird Dreams	£3.95
Weird Dreams (Disc)	£5.95
World Class Leaderboard (Disc)	£5.95
World Class Rugby	£3.95
World of Soccer + Trevor Brooking	£3.95
Wrestling Superstars	£3.95
WWF	£3.95
WWF 2	£3.95
X-Out	£3.95

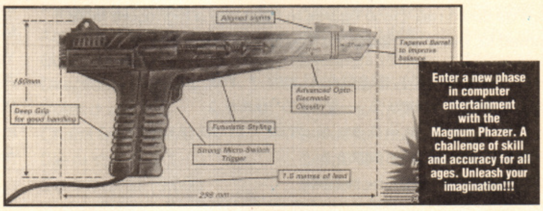
Also ZX Spectrum, CPC & ST

Prices inc P&P. Items subject to availability. Europe add £1 per title/Rest of the World £2.00 per item

---

WAREHOUSE CLEARANCE
THE MAGNUM PHAZER GUN (FOR THE COMMODORE 64/128)

Enter a new phase of computer entertainment with the Magnum Lightphazer. Unleash your imagination and take up the challenge of the six action packed games included in the pack on both cassette and disk:-


Aligned sights
Tapered Barrel to improve balance
150mm
Deep Grip for good handling
Advanced Opto-Electronic Circuitry
Futuristic Styling
Strong Micro-Switch Trigger
1.5 metres of lead
298 mm

Enter a new phase in computer entertainment with the Magnum Phazer. A challenge of skill and accuracy for all ages. Unleash your imagination!!!

GAMES AS FOLLOWS:- Operation Wolf / Gunslinger / Cosmic Storm / Ghost Town / Baby Blues and Goose Busters. (Different games available for Amiga, Atari ST/STE, Spectrum and Amstrad computers).

RRP ~~£29.99~~ OUR PRICE £12.99+ £2.50 P.P.

PHAZER GUNS ALSO AVAILABLE FOR THE ATARI ST/STE RRP ~~£39.99~~ OUR PRICE £12.99, THE COMMODORE AMIGA (ALL MODELS) RRP ~~£39.99~~ OUR PRICE £14.99, THE SPECTRUM 2A/3A RRP ~~£29.99~~ OUR PRICE £12.99, AND THE AMSTRAD 464/6128 RRP ~~£29.99~~ OUR PRICE £12.99.

LIGHT PENS ALSO AVAILABLE FOR THE COMMODORE 64/128 RRP ~~£29.99~~ OUR PRICE £16.99 AND FOR THE COMMODORE AMIGA (ALL MODELS) RP ~~£39.99~~ OUR PRICE £16.99

PLEASE ADD £2.50 FOR POSTAGE AND PACKING ON THE ABOVE ITEMS.

ALL ORDERS SENT BY RETURN: CHEQUES/VISA/ACCESS/PO'S

TRADING POST

VISA
VICTORIA ROAD, SHIFNAL, SHROPSHIRE
TF11 8AF
TELEPHONE/FAX (0952) 462135
Access

REPAIRS AND SPARES

C64 Repair	£19.99	C64 PSU	£17.95
C64 Datasette	£24.99	Sound Chip	£5.99
1541 Drive Repair	£34.99	Vic Chip	£7.99
Parallel Converter	£19.99	6510 CPU	£5.99
C64 Manual	£4.99	6526 C.I.A.	£5.99
64 Slimline Case	£7.99	MPS 801/803 Ribbons	£4.99

For a speedy repair send computer and covering letter.
3 month warranty included. To order any of the above send a cheque/P.O. or phone credit card number.

VISA

Omnidale Supplies (Dept. C.F.)
8E Rowan Court, Friar Gate,
Derby DE1 1BU Tel: 0332 291219

Access

TECHIE TIPS

Printers problems, graphical glitches and coding headaches are just putty in the hands of Jason Finch, waiting to be moulded into answers (eh – Ed?)

WOT NO PLOT?

**Dear Techie Tips,
I have just acquired a Commodore 1520 printer/plotter but have no idea about how to work it because it did not come with a manual. Any help you can offer, and perhaps test programs, would be appreciated.
*Paul Macey, Swindon***

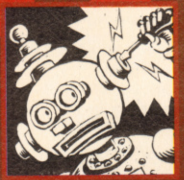
The plotter is set up as device six. This means you connect it up to the C64 and then access it like you would a printer, but instead of giving a device number of four, you give one of six. So to list a Basic program to the plotter you would do `OPEN 4,6:CMD 4:LIST` and then `PRINT#4:CLOSE 4` when it had finished. I have included a couple of programs out of the 1520 manual which demonstrate how to access other features, such as changing the colour, moving the pen around, and plotting text in different sizes, all of which are far more exciting than admiring the plotter and, dare I say it, watching an episode of *Neighbours*.

This program should draw a number of concentric squares on the paper, changing the colour between each one.

```
100 REM PLOTTER SQUARES FROM MANUAL
110 OPEN 4,6:REM PRINT ASCII
120 OPEN 1,6,1:REM PLOT X,Y DATA
130 OPEN 2,6,2:C=0:REM PEN COLOUR
140 PRINT#4:PRINT#4,"SQUARES"
150 PRINT#1,"M";240,-240
160 PRINT#1,"I"
170 FOR I=0 TO 90 STEP 10
180 C=C+1:IF C>=4 THEN C=0
190 PRINT#2,C:REM SET COLOUR
200 FOR J=1 TO 11
210 X=I+J
220 Y=I+J
230 PRINT#1,"R"; X,-Y
240 PRINT#1,"J"; X, Y
250 PRINT#1,"J";-X, Y
260 PRINT#1,"J";-X,-Y
270 PRINT#1,"J"; X,-Y
280 NEXT J
290 NEXT I
300 PRINT#4:PRINT#4:PRINT#4
310 PRINT#1,"R";0,-200
320 OPEN 7,6,7:REM RESET PLOTTER
330 PRINT#7
340 CLOSE4:CLOSE1:CLOSE2:CLOSE7
350 END
```

The second program is much shorter, and will display four lines of text, each in a different size.

```
100 REM PLOTTER TEXT FROM MANUAL
110 OPEN 4,6:REM PRINT ASCII DATA
120 OPEN 3,6,3:REM SELECT CHAR SIZE
130 FOR I=0 TO 3
140 READ X$
150 PRINT#3,I
160 PRINT#4,RIGHT$(STR$(I),1);"=";X$;"
CHAR"
170 PRINT#4
180 NEXT I
190 PRINT#3,1:REM RESET TO 40 PER LINE
200 CLOSE4:CLOSE 3
210 END
220 DATA "80","40","20","10"
```



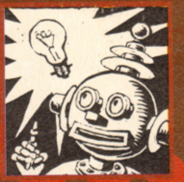
RAINBOW WARRIOR

**Dear Techie Tips,
I recently purchased a STAR LC10C colour printer. I set it up according to the instructions. I received good colourful printouts and decided to use the art packages that I have; *The Image System*, *The Designer's Pencil*, *Mouse and Cheese* and *Saracen Paint*. I know that I must use the Action Replay to print the *Saracen Paint* pictures and that it will only produce pictures in shades of grey. However, with the other art packages, and without the use of Action Replay, I still only get pictures in shades of grey.
1 Am I not doing something I should be doing?
2 Are these programs simply not capable of printing in colour?
3 Is there a POKE or program I can use to get these packages to print in colour?
4 Are there any art packages anywhere that I can use with the STAR LC10C printer?
*Someone, Somewhere.***

SARACEN PAINT
C64 128

Art packages let you design pictures in colour, but how do you get your printer to print them out?

1 You are indeed doing everything you should be doing, but shades of grey are all you will get from these art packages.
2 That's right, they were written before the notion of a colour printer for the C64 was heard of.
3 Yes, Datel Electronics Ltd (☎ 0782 744707) sell a thing called a Colour Printer Driver which is a program that will take files generated by *The Advanced Art Studio* and output them in colour to a colour printer. You can convert your files into that format using your Action Replay cartridge.
4 Not that I know of; your best bet is to get hold of Datel's Colour Printer Driver, convert your pictures, and print them using that piece of software.



SIZE MATTERS

**Dear Techie Tips,
I would like text in big letters on the screen because, at the moment, I am just using small standard letters in my games. Please would it be possible to give me a program that allows me to print text on the screen in big fancy letters.
*M Donovan, Batley.***

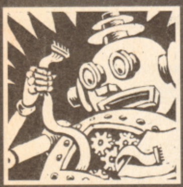
Big fancy letters are only achieved through someone sitting down with an art package and drawing them; there are no listings that will automatically create a stunningly gorgeous set of letters. All I can offer you is a listing that will convert the normal size character set into one which is twice as big; two characters across by two down.

The program below includes a demonstration section that shows you how to display these double-sized letters on-screen. Basically you have to know the screen POKE code; for example, in this case, we'll say it's X. The top-left part of the letter is code X, the top right is X+64, the bottom left is X+128 and the bottom right is X+192. To access the new letters you need to `POKE 53272,28` after generating them with `SYS 49408`. The routine in lines 28-36 plots the text in string T$ and coordinates X (0-38) and Y (0-23) on the screen, in colour C (0-15).

```
10 REM AUTO 2X2
CHARSET BY J.FINCH
11 FOR X=49408 TO
49614:READ Y:POKE
X,Y:C=C+Y:NEXT X
12 IF C<>27482
THEN PRINT "DATA
ERROR":END
13 SYS 49408
:REM MAKE NEW
CHAR SET
```

➤

```
14 POKE 53272,28:REM SWITCH TO NEW SET
15 PRINT CHR$(147);:POKE 53280,11:POKE
53281,0
16 :
17 Y=3:X=1:C=10:T$="TECHIE":GOSUB28
18 Y=Y+3:T$="TIPS SECTION":GOSUB28
19 Y=Y+3:T$="CF45":GOSUB28
20 Y=14:X=4:C=5:T$="BIG CHAR
MAKER":GOSUB28
21 Y=20:X=18:C=14:T$="BY
J.FINCH":GOSUB28
22 :
23 POKE 198,0:WAIT 198,1:POKE 198,0
24 POKE 53272,21
25 END
26 :
27 REM PLOT CHARACTERS
28 FOR L=0 TO LEN(T$)-1
29 SP=1024+Y*40+X+L*2:CP=SP+54272
30 T=ASC(MID$(T$,L+1,1))AND63
31 POKE CP,C:POKE CP+1,C
32 POKE CP+40,C:POKE CP+41,C
33 POKE SP,T:POKE SP+1,T+64
34 POKE SP+40,T+128:POKE SP+41,T+192
35 NEXT L
36 RETURN
37 :
50 DATA 169,000,133,168,133,170,133,172
51 DATA 133,174,133,251,169,048,133,169
52 DATA 169,050,133,171,169,052,133,173
53 DATA 169,054,133,175,169,208,133,252
54 DATA 120,169,051,133,001,160,000,177
55 DATA 251,153,167,193,200,192,008,208
56 DATA 246,160,000,185,167,193,072,041
57 DATA 240,074,074,074,074,170,189,191
58 DATA 193,153,175,193,104,041,015,170
59 DATA 189,191,193,153,183,193,200,192
60 DATA 008,208,224,162,000,160,000,189
61 DATA 175,193,145,168,200,145,168,136
62 DATA 189,183,193,145,170,200,145,170
63 DATA 136,189,179,193,145,172,200,145
64 DATA 172,136,189,187,193,145,174,200
65 DATA 145,174,200,232,224,004,208,215
66 DATA 165,251,024,105,008,133,251,133
67 DATA 168,133,170,133,172,133,174,144
68 DATA 010,230,252,230,169,230,171,230
69 DATA 173,230,175,165,252,201,210,208
70 DATA 132,169,055,133,001,088,096
71 :
72 DATA 000,000,000,000,000,000,000,000
73 DATA 000,000,000,000,000,000,000,000
74 DATA 000,000,000,000,000,000,000,000
75 :
76 DATA 000,003,012,015,048,051,060,063
77 DATA 192,195,204,207,240,243,252,255
```



A FLASHY EFFECT

Dear Techie Tips,

1 How do the Rowland Boyz get words like STATUS HAPPY in *Mayhem In Monsterland* flash that yellow and blue?

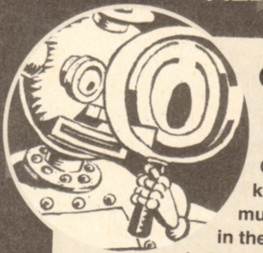
2 In *CF*35 the SYS number you printed that's supposed get rid of the *Creatures 2* effect and scrolling messages doesn't seem to work. What is the right one?

Scott Weir, Birmingham.

1 That rather nifty effect is done by changing the colours of each part of the letter; each letter is made up of four characters. The colours are effectively POKEd to the screen, and the same colours are POKEd on the line below, but with a 'drag' of one character position. These colours are then all scrolled to the right and the result, known as colour cycling or colour rolling, is the effect you witness to extremely good effect in *Mayhem In Monsterland.*

The following program generates a piece of code that does the same thing, and allows you to change the colours that are used. If you run the SIZE MATTERS program first (in the answer to the previous letter), and enter POKE 53272,28 before running this one, you will see the text as a 2x2 character set.

```
1 REM COLOUR ROLL BY J.FINCH
2 FOR X=49152 TO 49226:READ Y:POKE
X,Y:C=C+Y:NEXT X
3 IF C<>8678 THEN PRINT "DATA
ERROR":END
4 DIM C(3,16)
5 FOR N=1 TO 3:FOR C=1 TO 16
6 READ C(N,C):NEXT C,N
7 :
8 SYS 49152:REM START COLOUR ROLL
9 :
10 PRINT CHR$(147);CHR$(5);
11 POKE 53280,0:POKE 53281,0
12 T$=" TECHIE TIPS CF45 "
13 FOR L=1 TO 18:SP=1944+L*2
14 T=ASC(MID$(T$,L,1))AND63
15 POKE SP,T:POKE SP+1,T+64
16 POKE SP+40,T+128:POKE SP+41,T+192
17 NEXT L
18 :
19 N=1:PRINT "PRESS '1' '2' '3' TO
CHANGE COLOURS"
20 FOR C=1 TO 16
21 POKE 49226+C,C(N,C):NEXT
22 GET K$:IF K$<"1" OR K$>"3" THEN 22
23 N=ASC(K$)-48:GOTO 20
24 :
50 REM MACHINE CODE
51 DATA 169,000,141,021,192,141,022,192
52 DATA 120,169,023,141,020,003,169,192
53 DATA 141,021,003,088,096,000,000,173
```



COULD IT BE MAGIC?

Dear Techie Tips,

Okay, I admit it, I don't know how they got that murky greeny brown colour in the mountains in *Mayhem in Monsterland*. I read the series and know it's something to do with mixing two of the normal colours.

1 Which ones are mixed?

2 How exactly is it done on the C64?

3 Is it meant to happen or is it an illusion?

4 How come it looks so good?!

5 Apparently you are a Take That fan too. Is this true or just a vicious rumour?

6 Is there any chance you could title this letter, *Could It Be Magic?*

Louise Greenwood, Nottingham.

1 If you're thinking about the same murky greeny brown colour as I think you're thinking about, the colours used are green (colour 5 on the C64) and pink (colour 10).

2 It is achieved by displaying a single horizontal line of green, followed by a single line of pink and so on. Each line is one pixel wide. The following short program will show you the effect in action. It creates two sprites made up of horizontal lines, one sprite has green lines and the other has pink ones. It then moves the two sprites together, so that the lines in one match up with the gaps in the other. As they overlap you will see how the green and pink combine to form this new colour. Rather nifty. Press the SHIFT key, or SHIFT LOCK if you're feeling particularly adventurous, to stop the action and admire the colour.

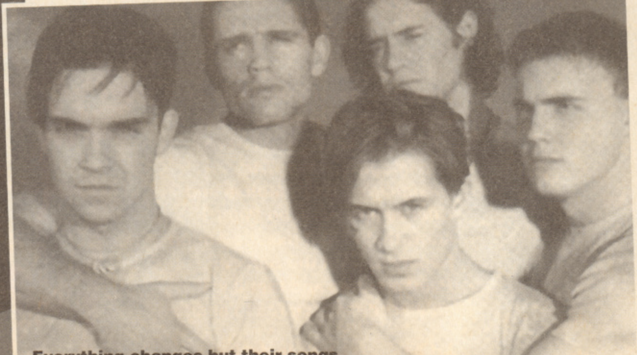
```
100 REM NEW COLOUR DEMO BY J.FINCH
110 FOR N=0 TO 62 STEP 6:FOR D=0 TO 2
120 POKE 832+N+D,0:POKE 835+N+D,255
130 NEXT D,N
140 POKE 53280,0  :POKE 53281,0
150 POKE 53249,120:POKE 53251,121
160 POKE 53287,5  :POKE 53288,10
170 POKE 2040,13  :POKE 2041,13
180 POKE 53271,0  :POKE 53277,3
190 POKE 53269,3
200 X=0:D=1
210 PRINT CHR$(147)
220 POKE 53248,160-X:POKE 53250,160+X
230 IF PEEK(653)=1 THEN 230
240 X=X-D
250 IF ABS(X)=60 THEN D=-D
260 GOTO 220
```

3 In theory the effect is not meant to happen, but it does because of the resolution of the television or monitor screens that everyone uses. I could go into technical details about electron deflection and cathode ray tubes but I think you'd probably get bored pretty quickly.

4 Because we're talking about one of the best home computers ever created by mankind. Or any other species, come to that.

5 People have said I am obsessed with Take That, yes. Whether I am or not is anyone's guess, but you'll never get me to admit to having posters of anyone out of TT on my bedroom wall.

6 Only if Ollie agrees to put the picture I've given him next to this letter. Hang on, I'm experiencing a strange sense of deja vu…



Everything changes but their songs.

QUICK SHOTS

● Can you please recommend a colour monitor which is suitable for use with a C64?
Matthew Kitson, Cambridge.

Any monitor that accepts composite video input should do; I use a Commodore 1084, but the stereo version (the 1084S) will probably be easier to come across as it's popular with Amiga owners. Give Cavendish Commodore a call on ☎ 0533 510066, they should be able to help you.

● Could you give me a listing to convert Basic programs into machine code?
Jonathan Hosking, Kings Lynn

"No," is the simple answer to that one. Programs that convert Basic into other languages, such as machine language, are called compilers and they are horrendously long and complex; far too long to have a listing included here. You could put an ad in the Buyarama requesting something like *PetSpeed64*, *Blitz* or any other Basic compiler.

● I am having problems with *InterWord* which was on Power Pack 40. It loads okay but I cannot save documents. I am also having problems printing.
Ian Hitch, Ely.

The problem with saving documents is that *InterWord* was written to cater for disk users, so saving to tape does not work. This, the printing problem and various other frustrating and world-threatening hassles are being looked into.

● I know loads of people have asked this before but can we please, please, please have a machine language series in *Commodore Format* because I type in all your listings but don't know why they work!
Timothy Wilson, Wolverhampton.

Well forgive me for being a peach, but I thought a machine language series had started up in this issue (*indeed it has, on page 23. Because you demanded it, etc, etc. And you'll never guess who wrote it – Dave*). Obviously, though, you didn't know that was the case when you wrote to me. However, I can recommend an excellent fortune teller (who lives in a lay-by on the A5) to stop similar embarrassing situations arising in future if you're interested.

```
54 DATA 022,192,073,001,141,022,192,240
55 DATA 031,160,039,174,021,192,189,075
56 DATA 192,153,152,219,153,191,219,032
57 DATA 067,192,136,192,000,208,239,174
58 DATA 021,192,032,067,192,142,021,192
59 DATA 076,049,234,232,224,016,208,002
60 DATA 162,000,096
61 REM COLOUR INFORMATION 1
62 DATA 14,05,03,07,07,07,07,07
63 DATA 03,05,14,06,06,06,06,06
64 REM COLOUR INFORMATION 2
65 DATA 01,01,01,01,01,15,10,08
66 DATA 02,02,02,02,02,08,10,15
67 REM COLOUR INFORMATION 3
68 DATA 13,03,05,14,14,04,11,06
69 DATA 04,02,08,10,10,07,07,01
```

The code will do the colour rolling on lines 23 and 24 of the screen. If you have an Action Replay cartridge (you know you should) you can change that. Enter MON from Basic to get into the machine code monitor (or use the standard option screen). Now enter `D C029 C02F`. You should see this:

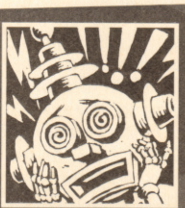
```
.D C029 C02F
.> C029 99 98 DB STA $DB98,X
.> C02C 99 BF DB STA $DBBF,X
```

Now, say that you wanted to start the colour rolling on line 5, what you need to do is enter `N 55296+5*40`, press the RETURN key, and finally enter `N 55296+5*40+39`. The following should appears on your screen:

```
.N 55296+5*40
$D8C8 %1101100011001000 55496
.N 55296+5*40+39
$D8EF %1101100011101111 55535
```

The two things starting with dollar signs are hexadecimal numbers: $D8C8 and $D8EF (*check out our brilliant new Machine Language series starting on page 23 for the lowdown on hex numbers – Dave*). Go up to the two similar hexadecimal numbers after the STAs and change them – simply overtype the old number with the new one in exactly the same way you would if you were changing a line in a Basic program. Press RETURN after you alter each one. Now when you `SYS 49152`, the rolling will occur on a different line. Stunning stuff, eh?

2 `SYS 65409:SYS 65412:SYS 65418` should do the trick; you need all three.



ON THE MOVE

Dear Techie Tips,
I am busy writing a game, hopefully for use on the *CF* Power Pack. My problem is that I need a machine code routine which does the following. I have six blocks of data, each being 1,296 bytes long, stored sequentially from location 40960 onwards. Each block consists of 1,152 bytes of graphic data followed by 144 bytes of colour data. I need a routine that copies the 1,152 bytes of graphics data in a user specifiable block to the locations 15232-16383. After the graphics data has been copied, the 144 bytes of colour data need to be copied into a 12 by 12 square in the colour memory map, the top left corner of the square residing at location 55337. I must be able to select where the source data comes from by using several POKEs in a Basic program. I know this is a big favour to ask, but can you write a routine for me which will go into the memory from 49152 onwards and either print the assembly language or a Basic loader in your mag. Thanks.
Mark Hammond, Dereham.

Well, in the words of the Pet Shop Boys, I wouldn't normally do this kind of thing, but as it is for a good cause, I've written you a specific piece of code that will do what you want. To do the transfer, POKE 2,N where N is the number of the block from 0 to 5, and then SYS 49152. Here's the Basic loader:

```
1 REM BLOCK TRANSFER BY J.FINCH
2 FOR X=49152 TO 49269:READ Y:POKE
X,Y:C=C+Y:NEXT X
3 IF C<>17755 THEN PRINT "DATA
ERROR":END
4 PRINT CHR$(147)
5 PRINT "POKE 2,N (0-5) AND THEN SYS
49152":PRINT
6 PRINT "TRANSFERS 1152 BYTES OF
GRAPHICS DATA"
7 PRINT "FOLLOWED BY 144 BYTES OF COLOUR
DATA"
8 PRINT "MARK HAMMOND GIVE ME CREDIT
PLEASE"
9 :
10 DATA
169,054,133,001,165,002,010,010
11 DATA 072,010,010,133,251,104,024,101
12 DATA 002,105,160,133,252,169,128,133
13 DATA 253,169,059,133,254,162,004,160
14 DATA 000,177,251,145,253,200,208,249
15 DATA 230,252,230,254,202,208,242,177
16 DATA 251,145,253,200,192,128,208,247
17 DATA 165,251,024,105,128,133,251,144
18 DATA 002,230,252,169,041,133,253,169
19 DATA 216,133,254,162,012,160,000,177
20 DATA 251,145,253,200,192,012,208,247
21 DATA 165,251,024,105,012,133,251,144
22 DATA 002,230,252,165,253,024,105,040
23 DATA 133,253,144,002,230,254,202,208
24 DATA 220,169,055,133,001,096
```

If you disassemble the code, you should be able to work out how the routine works. `$C000-$C003` set `$01` to access the RAM at `$A000`, `$C004-$C014` calculates `40960+PEEK(2)*1296` and stores the result in locations `$FB/$FC`, `$C015-$C01C` puts the value `$3B80` in locations `$FD/$FE`, `$C01D-$C037` transfers the 1,152 bytes of graphics data using indexed addressing, `$C038-$C042` makes sure `$FB/$FC` points to the colour data after the transfer, `$C043-$C04A` puts the value `$D829` in locations `$FD/$FE`, `$C04B-$C070` transfers the 144 bytes of colour data in a 12 by 12 square, and `$C071-$C075` resets `$01` for ROM access and returns from the routine. Be here again in 30 days. CF

GOT A PROBLEM?

Well, depending on what the problem is we might be able to help. If it involves the C64, Take That lyrics, loopholes in the plots Jon Pertwee *Doctor Who* episodes or the nomenclature of Outer Hebredean fishermen during the 1880s then write to us here at Techie Tips, Commodore Format, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW. If not, don't.

UNCLE DAVE'S BUY-A-RAMA

FOR SALE

Bargains, bargains and, indeed, more bargains. Plus some other stuff. It's the C64 car boot sale. Without the cars.

FOR SALE

- **C64 Nightmoves pack –** joystick, datassette, loads of software, magazines and covertapes. Bargain for quick sale £45. Telephone Mike on 0772 882262.
- **C64 cartridge,** unused. With four games – Klax, Fiendish Freddy, Flimbo's Quest, International Soccer. Only £15. Write to Christopher Price, 19 Chilton Road, Long Crendon, Aylesbury, Bucks HP18 9BU.
- **C64 with one joystick,** over 100 games, two datassettes and magazines. £80ono. Please call Jonathan on 051 931 5695.
- **C64 with three joysticks,** datassette, disc drive, light gun, printer, over 500 games all boxed. Bargain at £200ono. Ring Samuel on 08494 28233.
- **CF1-44** complete with all covertapes. Will accept best cash offer. Call Bert 071 254 4999.
- **C64, over 400 games,** 40 magazines, four joysticks. Worth £310. Selling for £200. Call 0444 414899 and ask for Barry or James.
- **C64 for sale.** Around 30 games with six programming manuals and two programming cassettes and two joysticks all for £50. Phone Southampton 405786.
- **C64 almost new,** disk drive, 1541, MPS 802 printer, plus two datassettes, disks, carts and mouse. Phone 051 648 7519.
- **Manchester United Europe,** Big Box 2, Space Gun, The Trap Door, Magicland Dizzy, Santa's Xmas Caper, Commodore Force 11, 12, 13. Worth around £46. Sell for £21. Call Jennifer on 0792 898191 between 6pm and 8pm.
- **200 C64 games** for sale. Prices from 50p. Phone Claire Barlow 081 244 9510 or SAE for list – 39A Perry Rise, Forest Hill, London SE23 2QX.
- **Master System 2** with one controller and six games including Prince of Persia and Sonic (boo hiss). All boxed £45 or swap for Action Replay cart or disk drive. Also Hi to Dave Golder – did you see the John Rowlands lookalike in the Vauxhall advert? Tel 0307 850257 afternoons
- **C64 games.** Over 50 titles. Mostly £1.99. Tapes, disks, cartridges, hardware and music CDs, tapes, records. Send SAE to M Raynes, 267 Pelham Road, Immingham, South Humberside, DN40 1JU.
- **Sega Game Gear** Global Gladiators game, Boxed with instructions. £20ono. Phone Kelly after 7pm weekdays on 0704 560720.
- **Shinobi, Batman Caped Crusader,** Batman Movie, Spike in Transylvania, Android 2, Defenders of the Earth. 50p-£1.50. Phone 0993 898313 now.
- **C64, datassette,** mouse, art package, bug joystick, 8 games, £60. Also available, Mercenary 1&2, CF games and WP and art package on disk. £30. Nicola Schofield, 5 Lobley Close, Smallbridge, Rochdale, OL12 9SQ.
- **Turrican,** Ninja Spirit, Slightly Magic, Moontorc, Tiger Road, Renegade 3, Tusker, Magicland Dizzy, Turtles 1, all cassettes, £1-£2. Phone Rupert on 0993 898313 now!
- **C64 Light Fantastic** Pack for sale. Light gun. Over 240 games on cassette. Joystick. Powerpacks 10-40. Will spilt. Bargain at £110ono. Phone Daniel on 0274 585493.

WANTED

- **C64 games,** disks, little computer people, Sinbad Throne of Falcon, Summercamp, last Ninja 3, Nobby, Aardvark, California Games Cassette, Terrormolinos. Cart Ninja Remix. Contact Kris (0287) 635934. Excellent prices paid.
- **Wanted,** GameBoy, will swap for my four wheel drive radio controlled car. Phone 0702 470 802.
- **C64 ROM**, Speedball 2, Iron Lord, Project Firestar, Rocket Ranger, Subbuteo Sim, Steel Thunder, pay as new. Cass/disk preferred. Also many C64 games and mags from 50p. Send SAE to 57 Holdenhurts Avenue, Bournemouth, Dorset BH7 6RB for list.
- **Help!** C64 fan needs SEUCK replacement disk. Contact Myke on 0246 239048. Eeeek!
- Writers for new Commodore fanzine. Also wanted reader games, demos and utilities for proposed covertape. Send SAE for more details to Brian Turner, 46a Kent Avenue, Ashford, Kent TN24 8NQ
- **Powerage**, a new demo-group in Norway. Musician needed. Contacts also wanted. If you've got lots of PD then contact me and create a PD library! The Ninja Powerage, Kay Arnesen, Duupvag, 9310 Sorreisa, Norway.
- **Wanted:** Mini Office 2 on tape. I will swap for games or buy. Ring Joseph on 0533 715392.
- Mini Office 2 instruction manual, my dog found it edible. Please call Tony on 0595 85368. Will swap or buy.
- **Urgently wanted!** Bomjack and Bombjack 3. Will pay post. Must be on tape. Phone Chris on 0283 61289.
- **Urgently required** – Mini Office 2 on disk for C64. 0204 845873.
- **Space Rogue**, Knights of Legend and/or Region disks for C64 or Amiga. Good price paid or swap. Phone 0493 650661 or 0603 484577.

PEN PAL

- **Wanted.** Pen pal aged 10-13. Contact Gareth Shaith at 35 Pemberton Street, Llanelli, Dyfed, SA15 2RB.
- **Pen pal** wanted to swap PD programs and letters on 5.25-inch disk. Any age, any sex, UK or abroad. Will provide letter writing programs. Replies guaranteed. Write to: HAL 2000, 14 Bromsgrove Road, Halesowen, West Midlands B63 3LJ.
- **C64/128** pen pals wanted world wide to swap programs, tips, etc. Randy, PO Box 477, Brunswick, OH10 44121, USA.
- **Pen pal wanted**. Must be male, like football, aged 9 to 11 and have C64. Maybe even meet. David Roberts, 55 Ramsden Avenue, Barton-OnHumber, South Humberside DN18 5LL.

BUY-A-RAMA ORDER FORM

NAME

ADDRESS

Classification: Tick box; ☐ For sale ☐ Wanted ☐ Services ☐ User groups ☐ Pen pals

BUYING? SELLING? DOING SOMETHING ELSE THAT THE C64 WORLD SHOULD KNOW ABOUT? THEN CF IS THE PLACE TO ADVERTISE...

And it's as easy as filling in this 'ere form and sending it to us here at Uncle Dave's Buy-A-Llama, *Commodore Format*, Future Publishing, 30 Monmouth Street, Bath, Avon BA1 2BW. And it's free! But that doesn't mean you can take liberties. It's one word to a box in the grid. Cram in more and your ad will be heading binwards.

BACK ISSUES and BINDERS

OFFICIAL! BRITAIN'S BEST-SELLING COMMODORE 64 MAGAZINE!
COMMODORE FORMAT
Still waving the flag for the Commodore 64!
ISSUE 43 • £2.95 • APRIL 1994
2 READER GAMES
PLUS
TECHIE TIPS & SHREWD SOFTWARE COLLECTION
SPORT
BE A GOOD SPORT!
From the pavilion to the grandstand, we reveal everything you ever wanted to know about C64 sports games. Six pages of sport starts on page 17...
COMMODORE FORMAT TECHIE TIPS 2 READER GAMES POWER PACK
THE ORIGINAL, THE BEST AND NOW THE ONLY CF!
Future

Commodore FORMAT
Just £5.99

All these brilliant issues of CF are still available – with their covertapes! So get 'em before stocks run out (and get a binder to stick your collection in while you're at it).

CF22 Power Pack games: *Hover Bovver, Agent Orange.* Demos: *James Pond 2, DJ Puff.* Reviews: *Euro Football Challenge, Dylan Dog, Bug Bomber.* Gamebusters: *Murray Mouse Rainbow Islands.*

CF23 Power Pack games: *Defenders of The Earth, Johnny Reb 2.* Demos: *Bug Bomber, Nobby The Aardvark, Biff.* Reviews: *Cool Croc Twins, Turbo The Tortoise, Xenomporph.* Gamebusters: *Maze Mania, Rainbow Islands, Super Seymour Saves The Planet.*

CF24 Power Pack games: *Famous Five.* Demos: *Ugh!, Cool Croc Twins, Match of the Day, Fuzzball* (never released). Reviews: *Mega Sports, Ugh!, Elvira 2, Hagar The Horrible, Nobby The Aardvark.* Gamebusters: *Space Crusade.* Specials: Getting the most out of your datassette (a popular one this), Typing in listings.

CF25 Extra covertape: *Saracen Paint.* Power Pack games: *John Lowe's Darts. Demos: Slicks, Hagar.* Reviews: *Hook, Match of the Day, Bangers and Mash, Count Duckula 2, Frankenstein, Slicks.* Gamebusters: *Space Crusade, DJ Puff, Vendetta.*

CF26 Power Pack games: *Twin Tiger, Cosmic Causeway, Bomber.* Demos: *Stuntman Seymour, Doc Croc.* Reviews: *Stuntman Seymour, Super All-Stars, Boxing Manager 2, Popeye 3.* Gamebusters: *Space Crusade, DJ Puff.* Specials: First installment of Let's Make a Monster.

CF27 Power Pack games: *Deflektor, Alternative World Games, The Muncher.* Demo: *Sceptre of Baghdad.* Reviews: *Crystal Kingdom Dizzy, Bully's Sporting Darts, Crazy Cars, Locomotion.* Gamebusters: 13-page *Creatures 2* special.

CF28 Power Pack games: *First Strike, Fifth Gear.* Demos: *Locomotion, Reckless Rufus, Nick Faldo's Championship Golf.* Reviews: *International Tennis, Cool World, Nick Faldo's Golf, Paint and Create.* Gamebusters: *Spellbound Dizzy, Famous Five.*

CF29 Power Pack games: *Herobotix, Battleships, Highway Encounter.* Demo: *Carnage.* Gamebusters: *Winter Camp, Spellbound Dizzy, Batman – The Caped Crusader.* Reviews: *WWF European Rampage, Sceptre of Baghdad, Playdays, Magic Rufus, Dalek Attack, Street Fighter 2, Superstar Seymour, Lethal Weapon.*

CF30 Power Pack games: *Slayer, Rebounder, Daedalus, Blackjack 21.* Gamebusters: *Creatures, Reckless Rufus, Winter Camp.* Reviews: *Carnage, Gladiators, Football Manager 3, Spelling Fair.* Specials: Writing good *SEUCK* games.

CF31 Power Pack games: *Cauldron 2, Snare, Subterranea, Monster Mash.* Demo: *Arnie 2.* Gamebusters: *Stuntman Seymour, Dalek Attack, Crystal Kingdom Dizzy.* Reviews: *McDonaldland, Table Tennis, Snare.* Specials: Football management sims.

CF32 Power Pack games: *Thrust, Steel, Corya.* Full Utility: *FROST* (sprite designer). Gamebusters: *Stuntman Seymour, Lethal Weapon, Dalek Attack, Wild West Seymour.* Reviews: *ARNIE 2, Fist Fighter, Trolls.* Specials: Shoot-'Em-Ups.

CF33 Power Pack games: *Snackman, ATA, Water Polo, Corya 2.* Gamebusters: *Lethal Weapon, Thrust.* Reviews: *Sleepwalker, Robin Hood, WWF, Robocod, Darkman, 4-Most World Sports.*

CF34 Power Pack games: *Arac, Corya 3, Shellshock.* Gamebusters: *Lethal Weapon, The Simpsons. Argon Factor, Addams Family, Liverpool.* 24-page special: The best C64 games still available.

CF35 Power Pack games: *Space Academy, Hallax.* Demo: *Lemmings.* Gamebusters: *Last Ninja 1,2 & 3.* Reviews: *Suburban Commando, Pirates, Mercs, Turbocharge.* Specials: The 64SX, Ultimate Beat-'Em-Up.

CF36 Power Pack games: *Starray, Squibbly Skwob.* Demos: *Suburban Commando, Breakthrough.* Gamebusters: *The Simpsons, Carnage, Street Fighter 2, Lethal Weapon, Cool World.* Review: *Bee 52.* Specials: Ultimate Flight Sim, Inside Your C64.

CF37 Power Pack games: *Nebulus, I Alien, Blockie, Kron, Lunar Landing, Game Over, Cyforce, Grod the Pixie, Vioris.* Demo: *Mayhem In Monsterland.* Gamebusters: *The Simpsons, Lemmings, Street Fighter 2, Cool World, Suburban Commando.* Review: *Alien 3.* Specials: Business software, platform games.

CF38 Power Pack games: *Lifeforce, Freddy Hardest, Jailbreak.* Demo: *Mayhem In Monsterland.* Gamebusters: *The Simpsons, Nebulus, Suburban Commando, Castle Master, Game Over, Nobby The Aardvark, SF 2, Bee 52.* Review: *Mayhem.*

CF39 Power Pack games: *Freddy Hardest Part 2, Deep Strike, Volcan, Robber.* Gamebusters: *Simpsons* (yawn), *Nebulus, Suburban Commando, Castle Master, SF2, Nobby.* Reviews: *Lemmings.* Special: The Apex Boyz show you how to design games.

CF40 Power Pack games: *Jocky Wilson's Darts, IO, Interword.* Gamebusters: *Mayhem, Suburban Commando.* Specials: Microdrives.

CF41 Power Pack games: *Future Knight, Vengeance.* Gamebusters: *Dizzy, Nobby The Aardvark, Mayhem, Volcan.* Specials: Essential EDOS – loadsareviews.

CF42 Power Pack games: *Stormlord, Deliverance.* Gamebusters: *Dizzy, Prince of the Yolk Folk, IO, Seymour Goes To Hollywood, Nobby The Aardvark, Sceptre of Baghdad.* Special: The best and worse games ever.

CF43 Power Pack games: Reader games extravaganza. Gamebusters: *Mayhem, Nobby, Future Knight.* Specials: How to make your games scroll, A-Z of sports sims, The return of Secret of SUECKcess.

CF44 Power Pack: Carnage, Mayhem Mega MIx Part 1. Gamebusters: *Mayhem, Nobby, Future Knight.* Reviews: Penguin Tower, Archetype, Time Crystal. Specials: Making music, PD library list, diary of a game: 10th Dan.

PACKED FROM COVER TO COVER WITH ESSENTIAL C64 INFO
COMMODORE FORMAT
If you've got a C64 then get this
CHECK THIS OUT
ON THIS MONTH'S BULGING TAPE...
CARNAGE
TOP SPEED BLAST'N'RACE ACTION
MAYHEM MEGA MIX
THE BEST MUSIC YOU'LL EVER HEAR ON A C64
PLUS
THE TECHIE TIPS COLLECTION
GROOVE IT
DISCOVER HOW TO MAKE BEAUTIFUL MUSIC. THE MEN WHO WROTE MAYHEM IN MONSTERLAND SHOW YOU THE WAY PAGE 26
COMMODORE FORMAT CARNAGE POWER PACK PLUS TECHIE TIPS MAYHEM MEGAMIX
44 THE CF POWERPACK
GAMES EXPLOSION
4 new games reviewed. And there are tons more
Future

VISA Access

COMMODORE FORMAT BACK ISSUES AND BINDERS ORDER FORM

- SEND THIS FORM TO: *Commodore Format*, Future Publishing Ltd, Freepost, Somerton, Somerset TA11 7BR
- Please make all cheques payable to Future Publishing Limited
- For overseas orders and customer services call the Hotline number for prices on 0225 442244.
- No stamp required if posted in the UK, Channel Islands or the Isle of Man.

BACK ISSUES

Please send me the following *CF* back issues: *(PLEASE CIRCLE)*

22 23 24 26 28 29 30 31 32 33 34 35 36 ....£2.50 each
25 27..........£3.25 each
37 38 39 40 41 42 43 ....£2.95 each

Plus £1 P&P per order (£2 Rest of world)

Method of payment (please circle): Access Visa Cheque Postal Order

Credit Card Number: ☐

Expiry date: ☐ EEC customers registered for VAT, please quote your registration number: ☐

Signature: ____________________ 06/94

Name ____________________
Address ____________________
____
____
____
Post Code ____________________
Phone number ____________________

I would like ☐ back issue(s) at **£2.50**, Total cost £☐☐.☐☐
I would like ☐ back issue(s) at **£2.95**, Total cost £☐☐.☐☐
I would like ☐ back issue(s) at **£3.25**, Total cost £☐☐.☐☐
I would like ☐ CF binders(s) at **£5.99**, Total cost £☐☐.☐☐
Postage and packaging £☐☐.☐☐
Total £☐☐.☐☐

BUT IS IT ART?

PART 1 – BACKGROUNDS

When it comes to designing game graphics knowing how to use the facilities the C64 has to offer is just as important as artistic flair. The Apex Boys give away a few tricks of the trade...

Apart from programming, the second hardest part of creating games is designing the graphics, which is why you'll rarely find a programmer who does both jobs. And before all of you non-arty types decide to turn the page, it might interest you to know that the key to great graphics lies not only in skill, but in knowing what the computer is capable of achieving. Let's face it, if you don't know the tricks then you can't exploit them. Over the next couple of issues we're going to tell you how it's done, starting with the most important – background graphics.

CHARACTER SETS

If you've never gone about writing a game before you might think the best way to design background levels is to knock 'em up in an art package like Saracen Paint. Wrong! The packages produce bitmapped pictures which are incredibly memory hungry, which make them impractical (see the BITMAP PICTURES box-out). Nope, if you want some room in your RAM to actually do things like scrolling or animation, your best bet is to build up the backgrounds using characters. A standard bitmap picture takes up a whopping 9K of memory, whereas a character set takes up only 2K.

A character set, or charset, is exactly what its name suggests – it's a 'set' of characters (8x8 pixel blocks). All the letters that appear on-screen when you type on the C64's keyboard are characters, for example. And the C64 lets you design your own character sets, which is rather handy.

There are 256 characters in a charset, logically because a byte can only hold values from 0-255. This means that although you can store several charsets in memory, only one can be 'used' by the C64 at any one time. Of course, data can be copied (or 'banked') into a charset to produce animated characters (discussed later on), but usually you're restricted to just 256 characters. Tough life, eh?

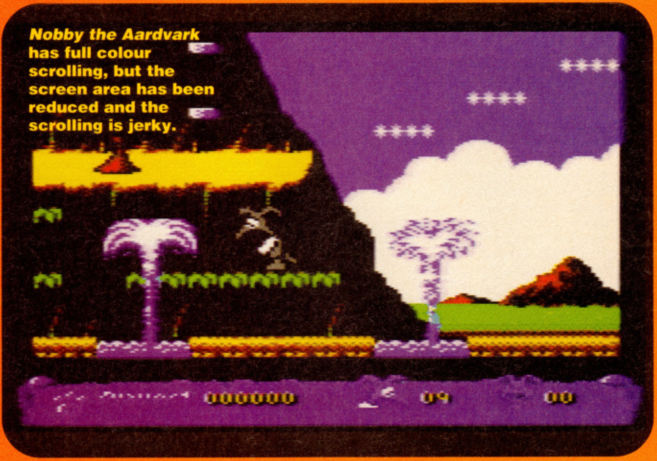
CHARACTER COLOURS

As well as a standard image, each character can also have its own individual colour, known as the CHARACTER COLOUR. Apart from screen memory, the C64 also contains an area known as the COLOUR RAM, on to which the character colours are plotted. In HI-RES mode, the colour RAM can contain values from 0-15, allowing all 16 of the C64s colours to be used. So, for example, when you type the word COMMODORE on screen, you could make each letter a different colour, but the background for all of them must remain the same colour – it is universal across the screen.

However, when MULTICOLOUR mode is switched on, the first eight colours (0-7) are used to denote hi-res characters, and the last eight colours (8-15) are used for multicolour characters. So, within each character you can have:

- One character colour that can be chosen from the first eight colours.
- a universal background colour.
- two universal multicolours.

In other words, when you're designing the graphics for a level you need to decide on three


Nobby the Aardvark has full colour scrolling, but the screen area has been reduced and the scrolling is jerky.

THE TECHY PROGRAM-TYPE STUFF

The following programs have been included not only to illustrate some of our graphics manipulation techniques, but also to allow any budding programmers to include such effects in their own programs. Each program can be typed in and RUN on its own, but if you want to use it in your latest blockbuster simply READ in the data before your program is run, then use the SYS call when you want the effect to start. Being such kind, generous, and modest individuals, we've also tailored the programs so that they can both be resident in memory at the same time. However, they cannot actually be used simultaneously.

This first program demonstrates colour splits, and changes the screen and multicolours roughly half-way down the screen. The height of the split is represented by the value 145 in line 20, and can be changed when the program is running by using POKE 49408,(50 to 250). The colour table is at location 49416, in the following order: screen colour, multicolour 1, multicolour 2 (top half), followed by screen colour, multicolour 1 and multicolour 2 (bottom half).

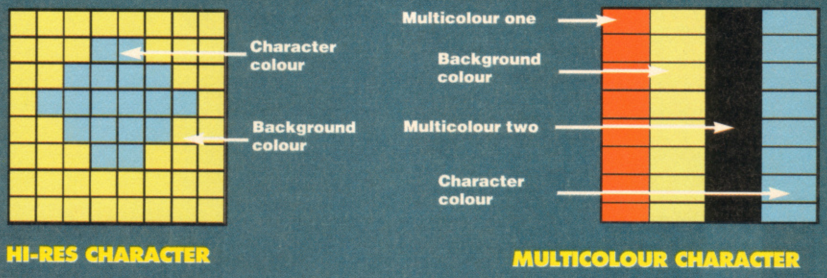
This table is represented by the last six numbers in the data list (012, 011, 015, 015, 010, and 014). Obviously you need to have multicolour mode switched ON to fully appreciate the effect – use `POKE 53270,PEEK(53270)OR 16.`

If you change the DATA values in the program, REMEMBER TO ALTER THE CHECKSUM or you'll get a DATA error!

```
0 REM APEX COLOUR SPLITS
1 FOR X=49325 TO 49421:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>10766 THEN PRINT "DATA ERROR":END
3 SYS 49325
10 DATA 120,169,121,141,013,220,173,013
11 DATA 220,169,027,141,017,208,169,000
12 DATA 141,018,208,169,212,141,020,003
13 DATA 169,192,141,021,003,169,001,141
```

colours – the two multicolours and the background colour, which will remain constant throughout. It might sound limiting at first, but you can achieve some very effective results. There's one thing to note, though – while characters in multicolour mode are the same size as in HI-RES mode, the pixels are twice as wide (see the RIGHT COUPLE OF CHARACTERS box).

A RIGHT COUPLE OF CHARACTERS



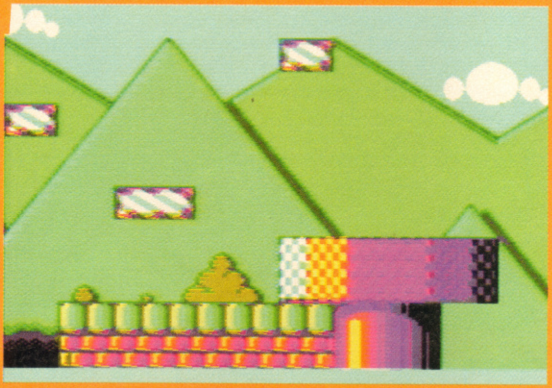
Remember, the two multicolours and the background colour remain the same throughout a level. You can then have one other character colour within each character chosen from the first eight colours in the C64's palate (black, white, red, cyan, purple, green, blue and yellow). But you can only use one character colour within each character. Note also the double-width pixels.

Anyway, purely by changing a value in the colour RAM, you can denote whether a character appears as hi-res or multicolour. This also means that only the first eight colours (black, white, red, cyan, purple, green, blue and yellow) can be used as character colours in multicolour mode.

For example, in hi-res mode a value of 15 would make the character hi-res LIGHT GREY. In multicolour mode, this would become a YELLOW multicolour character. If you take a look at *Mayhem in Monsterland*, both hi-res and multicolour characters are used extensively (hi-res being used mainly for clouds, stars and parallax).

Most games which use scrolling do not use different character colours; instead the colour RAM permanently contains the same colour (*Suburban Commando* for example). This isn't because the programmer is incompetent, or the graphic artist is lazy, but is due to the C64's limited power.

Basically if you're using character colours, the colour RAM information needs to be shifted along with the screen data every time it scrolls, effectively doubling the usual processing time. The scroller used in *Mayhem* and *Creatures* utilises a bug in the VIC chip to produce a very fast full-colour scroll. *Nobby the Aardvark* uses a genuine full-colour scroll, but the playing area is smaller and the scrolling jerky. If you want to use colour RAM, either cut down the playing area or don't scroll.



The mountains in *Mayhem* use a stippling effect.

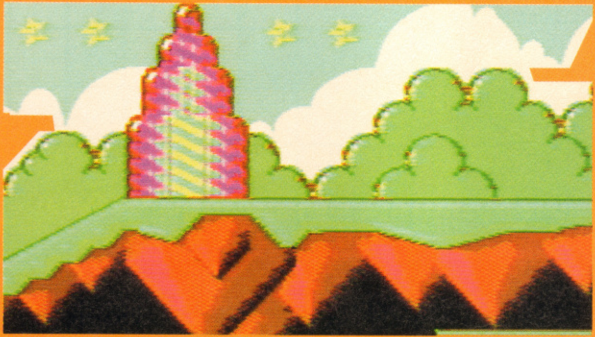
Apart from using the colour RAM to make your in-game graphics more colourful, you can also 'pulse' areas of the colour RAM to create colour cycling effects. The *MC Mayhem* demo featured on the past two covertapes uses this effect on the tune names; you might also be able to spot it in *Cyberdyne*, *Retrograde* and *Creatures 2*, particularly on title screens and high score tables.

STIPPLING

Sometimes known as 'cross-hatching', stippling is just another way of shading, highlighting or lowlighting. Say, for example, you had a light blue sphere which needed a highlight and a shadow. Rather than use 'solid' colour to shade the sphere, you could stipple the colour. In other words, use alternate pixels (in a sort of checkered fashion). If that has gone straight over your head, take a look at the rocky platforms in Happy Jellyland, which are stippled with pink and black rather than being filled in with a solid colour. You might also have spotted the stippled effect on the green platforms, which mixes cyan and green to create a 'lighter' colour.

COLOUR MIXING

This is a very handy technique for increasing the amount of colours on-screen, which doesn't involve hardware trickery or raster splits. Basically, new colours can be created by drawing alternate horizontal lines using two colours of equal brightness (green and pink, for example). When this appears on-screen, the colours blend to produce what looks like a completely new colour. This was used loads of times in *Mayhem* – take a look at the background mountains in Pipeland or the underwater sections in Spottyland.



ANTI ALIAS

When using multicolour characters, the pixels are wider than hi-res characters in order to

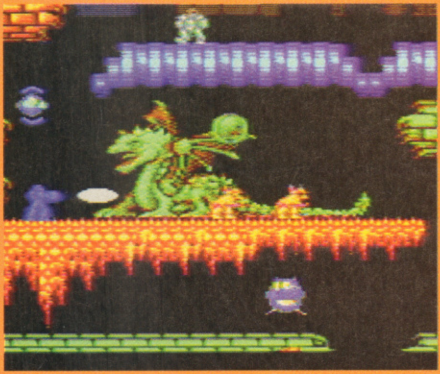
```
14 DATA 025,208,141,026,208,088,096,169
15 DATA 001,141,025,208,173,007,193,073
16 DATA 003,141,007,193,170,189,008,193
17 DATA 141,033,208,189,009,193,141,034
18 DATA 208,189,010,193,141,035,208,138
19 DATA 240,008,169,000,141,018,208,076
20 DATA 129,234,169,145,141,018,208,076
21 DATA 049,234,000,012,011,015,015,010
22 DATA 014
```

The next program is primarily for presentation purposes, and will generate a 16-line colour bar at the top of the screen (place some inversed text over this to gain the best effect). The height of the split is represented by the value 049 in line 23, and can be changed when the program is running by using `POKE 49530,(r*8+49)` where r is the row value from 0 to 24. The size of the bar is represented by the second 016 in line 27, and can be changed directly using `POKE 49564,(0-176)`. Do not use values higher than 176. If you'd like to 'cycle' the colour bar, you can change the 000 in line 16 to 001, or change it directly using `POKE 49475,(0 or 1)` where 0 is for no cycling, and 1 for cycling. And finally, the colour table is resident in memory at location `49664`, and is also conveniently located at the end of the program (allowing you to expand the table if desired). If you change the DATA values in the program, REMEMBER TO ALTER THE CHECKSUM or you'll get a DATA error!

```
0 REM APEX COLOUR BAR
1 FOR X=49422 TO 49568:READ Y:C=C+Y:POKE
X,Y:NEXT
2 FOR X=49664 TO 49679:READ Y:C=C+Y:POKE
X,Y:NEXT
3 IF C<>19110 THEN PRINT "DATA ERROR":END
4 SYS 49422
10 DATA 120,169,127,141,013,220,173,013
11 DATA 220,169,027,141,017,208,169,000
12 DATA 141,018,208,169,053,141,020,003
13 DATA 169,193,141,021,003,169,001,141
```

accommodate the extra colours. This has the disadvantage of making diagonal lines and curves look blocky. Anti-aliasing is a simple and painless method which effectively disguises the jagged edges.

For example, if you had a dark curve on a light background, an intermediate colour can be used to shade the curve and make it look much smoother. Pipeland uses quite a lot of anti-aliasing, particularly on the mountains and curved pipes.



***Cyberdyne Warrior* shows how can raster can be used to effect horizontal character colour splits.**

COLOUR SPLITS

Using raster interrupts to 'split' the on-screen colours is an effective way to add even more colour to your graphics. Very simply, the raster split changes the screen colour and multicolours at a certain height on the screen (but not character colours), allowing you to have, for example, a black screen with grey and blue multicolours in the top half, and a white screen with green and brown multicolours in the bottom. Colour splits were used in *Cyberdyne Warrior*, *Retrograde* and *Creatures 1&2*, purely to make the graphics more colourful. Note that colour splits cannot be used to split the character colour, as this is virtually impossible.

Another use for colour splits is presentation, namely the much-loved raster bar (which, not surprisingly, we've used in all of our games). This involves splitting the background colour to produce a colour bar across the screen. When inversed text is placed over this, it gives the impression that the text colour has been raster split (which, as we explained above, is almost impossible). If you'd like to try this effect in your own programs, take a look at the COLOUR BAR program.

```
14 DATA 025,208,141,026,208,088,096,169
15 DATA 001,141,025,208,162,011,202,016
16 DATA 253,032,129,193,169,000,240,051
17 DATA 173,160,193,073,001,141,160,193
18 DATA 208,041,174,156,193,202,202,134
19 DATA 255,024,169,000,101,255,141,119
20 DATA 193,169,194,105,000,141,120,193
21 DATA 172,000,194,162,000,189,001,194
22 DATA 157,000,194,232,228,255,144,245
23 DATA 140,255,255,169,049,141,018,208
24 DATA 076,049,234,169,007,133,255,160
25 DATA 000,185,000,194,141,033,208,141
26 DATA 033,208,152,037,255,240,005,162
27 DATA 006,202,016,253,200,192,016,208
28 DATA 232,096,000
29 REM  COLOUR TABLE
30 DATA 009,002,008,010,015,007,007,001
31 DATA 013,003,005,014,004,011,006,000
```

Finally, if you're using either of the above programs in your own BASIC productions, this listing can be used to 'turn off' the effects.

```
0 REM APEX RASTERS OFF
1 FOR X=49569 TO 49590:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>2496 THEN PRINT "DATA ERROR":END
3 SYS 49569
10 DATA 120,169,174,141,020,003,169,193
11 DATA 141,021,003,088,096,169,001,141
12 DATA 025,208,076,049,234,255
```

BUILDING A PICTURE

Before you start thinking about your background graphics, you need to get hold of a decent character editor (or font editor, as they're sometimes called). There are loads of them available from PD libraries, but make sure the editor allows you to edit multicolour characters as well as hi-res. We use a commercial editor by Firebird, called (rather cunningly) *Graphic Editor*. If you can get hold of this, do so, as it's a rather tasty piece of kit (and lets you edit sprites too). You don't necessarily need a graphic editor though, as it is possible to design your graphics on graph paper and convert the values into DATA, but this takes an inordinate amount of time (and is very, very boring).

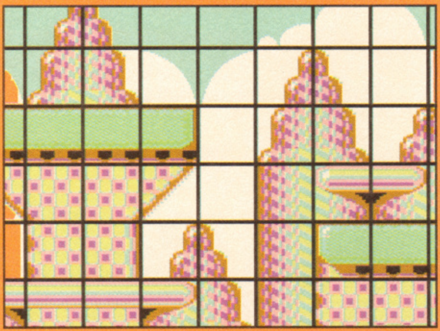
As mentioned earlier, you are restricted to 256 characters per charset, and therefore you have to think ahead and plan your graphics carefully. Using the same character repeatedly can save valuable character space; most of the levels in *Mayhem* have chequers of some sort, and therefore large areas can be built up using only a couple of characters. Obviously, the more detailed you want the graphics to be, the more characters you will end up using, but generally speaking if you can get away with repeating the odd character, do it.

The best way to start is to sketch on paper all the ideas you have, and all the graphics you want to include. Then, you need to sit down in front of character set editor and create graphics.

Experience has taught us to always include a blank character and inversed character (ie, solid character colour) in the character set – they come in very handy from time to time. Oh, and don't be surprised if it takes a long time to get the graphics just right – it might reassure you to know that Steve spent many a day tweaking just a couple of characters. It seems very restrictive at first, but if you sketch your graphics with characters in mind, it becomes easier and easier.

If you're finding it difficult to transfer your ideas from paper to pixels, try one of our nifty tricks; first, grab yourself some cling-film or similar transparent material, and trace your sketch using a permanent marker. Now place the cling-film over the screen and trace the image onto the C64 by drawing around it onto a 'block' of different characters. Simple but effective. Once you have the basic outline it should be fairly painless to fill in the required detail. However, as mentioned earlier, detailed graphics take up a lot of space, so be careful.

Once you've drawn your backdrops or whatever, the easiest way to print up a screen is by simply using PRINT statements. As you design your graphics, make a note of how they fit together, then replicate this in your own program. An alternative to PRINTing characters is to POKE the value (the character number) directly onto the screen (try POKE 1024,1 for the character, and POKE 55296,7 for the colour).



Blocks are a way of saving memory space. Instead of saving each individual character they can be grouped together and saved as blocks. In *Mayhem* blocks of 4x4 characters were used.

BLOCKS

Using blocks or groups of characters is a trick exploited by virtually all games creators, the main purpose of which is to save valuable memory. For instance, a typical C64 screen takes up 1,000 bytes of memory (almost 1K). To define the same screen using 4x4 blocks would take only 60 bytes, which is quite a saving. Now consider a scrolling game, with a map which is 10 screens long. Using characters it would take 10,000 bytes, as opposed to a mere 600 bytes when using 4x4 blocks.

Obviously the block definitions also take up space in memory, but this still takes up less memory (100 blocks would take up a measly 1600 bytes in comparison). If blocks seem too limiting, it might inspire you to know that each level in Mayhem used only 144 blocks.

Another point to consider is block size; all of our games have used the ubiquitous 4x4 blocks, but other block sizes are perfectly acceptable; *CJs Elephant Antics*, *DJ Puff* and *Nobby the Aardvark* use 2x2 blocks, while *Winter Camp* even used 8x4 blocks... take your pick.

ANIMATED CHARACTERS

It doesn't matter how detailed your background graphics are – if there isn't enough action, the backdrops will look lifeless. The actual process is quite straightforward, and involves copying (or banking) new data into the character set at regular intervals. Because this technique relies on data only, the animations don't have to be resident in the charset – only the characters which animate need to be included.

SCORE 0015
TIME 00
488
4

What a beautifully animated waterfall.

Animated characters can be used in many different situations; bubbling lava, fiery pits, water and rivers, to name but a few. This background animation, in small doses, will give the game extra life and sparkle. Where would *Creatures* be without the animated waterfalls? And what about the rotating stars in *Monsterland*?

ROLLING CHARACTERS

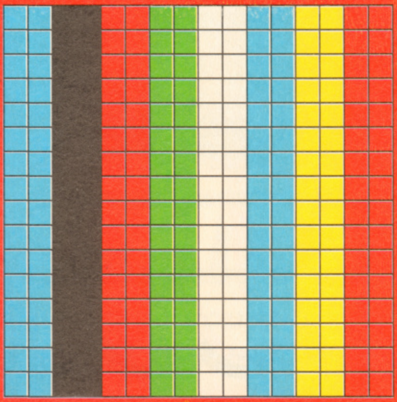
Apart from scrolling and animating characters, the actual character data can be 'rolled' (or shifted) in order to create the illusion of movement. *Mayhem in Monsterland* features some pretty dazzling parallax sections, which create an amazing illusion of depth. This trick was also used in *Retrograde* and *Creatures* to produce similar parallax effects.

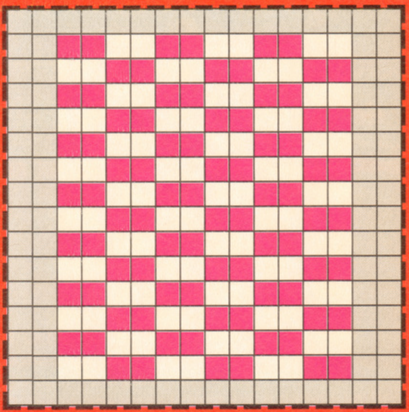
The actual technique is very simple. Basically it involves rolling the data through characters in the opposite direction to the screen scrolling (and at half the speed) to create a moving parallax background. Rolling the characters at the same speed as the scroller (again in the opposite direction) would give the illusion of a static background. Simple, but very effective. Rolling characters are also used to good effect in *Mayhem*'s intro and GET READY sequences to produce parallax landscapes without the need to physically scroll the screen.

SCORE
STARS
TIME
1UP

Parallax in Mayhem was made possible by rolling characters.

THE TOMORROW'S WORLD PATRONISING GUIDE TO SCROLLING THE COLOUR RAM





Getting the character colours to scroll is a nightmare, and here's where we explain why. Think of the left-hand block above as a section of the colour RAM onto which you have plotted your character colour information (ie, what character colours should go where in the background). The block on the right is the a set of four character blocks; let's say grey is the background colour, magenta is one of the multicolours and white represents the character colour (whatever that might be depending on the information in the colour RAM).

- ● Right now, cut out the block on the right and cut out holes where all the white pixels are.
- ● Next, place the cut-out block over the colour RAM block so that it covers it completely.
- ● Now move the character block over the colour RAM. This simulates scrolling WHEN YOU HAVEN'T SCROLLED THE COLOUR RAM AS WELL. In other words, the character colours appear to change. Not what we want.
- ● So, you have to move the colour RAM as well. In this case it's as simple as cutting out the colour RAM block above and gluing it underneath the character block. In programming terms it's more tricky and takes up a lot of memory. That's why some games (like *Suburban Commando*) cop out altogether and keep the same character colour throughout a level. Next month, black holes explained with the aid of a egg whisk and a washing up bowl.

Suburban Commando – really bland backgrounds.

THERE'S MORE

Now that you've got your backgrounds sorted out it's time to stick something on top of them, so next month the Boyz will be showing you how to spruce up your sprites. Be there or be a small potted plant.

BITMAP PICTURES

If you've never heard of bitmap pictures, you've almost certainly seen them (most loading screens are bitmap images). These are pictures that are stored in memory as whole pictures as opposed to user-defined character squares. Editors such as *Saracen Paint*, *Vidcom*, *OCP Art Studio* and *Neos Cheese* are dedicated to bitmaps, and such pictures can either be HI-RES (320x200 pixels) or LO-RES (160x200 pixels).

While hi-res pictures benefit from extra detail, only two colours are permitted in each character square (including the background colour). In lo-res, up to four colours are permitted in each character square (including the background colour), but with the disadvantage of 'chunkier' pixels. Needless to say, most people opt for the extra colours.

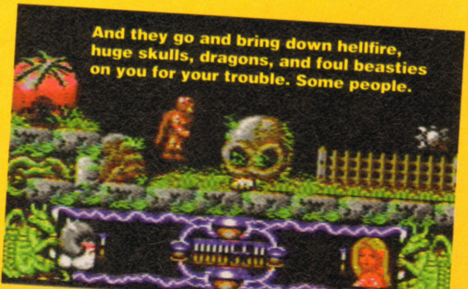
By now you're probably wondering why most games use characters instead of bitmaps. Firstly, a standard bitmap picture takes up a huge 9K of memory, whereas a character set takes up only 2K. Secondly, it takes much more processing power to print, scroll or animate bitmaps... which is why they are mostly used for loading screens. *Sceptre of Baghdad* used bitmaps, but the game was limited to flick-screen action and never made any attempt to scroll. Very few games actually use scrolling bitmaps in-game, but if you'd like to see some in action take a peek at *Stormlord* (featured on PowerPack 42) or its sequel *Deliverance*. Both have very narrow screens and black backgrounds.

THALAMUS
APEX COMPUTER PRODUCTIONS
+
TRANSMISSION SOFTWARE
HELL IS FOREVER

THE FEATHER DUSTER

Bitmap pictures, being so memory hungry, are usually reserved for into screens. *Sceptre of Baghdad* uses them, but does not scroll.

You try to be nice to people...



And they go and bring down hellfire, huge skulls, dragons, and foul beasties on you for your trouble. Some people.

GAMEBUSTERS

They tried to get it banned. MPs said it was corrupting our nation's youth by encouraging cheating and laziness. But Andy Roberts is still here to lead the gameplayingly challenged astray.

DELIVERANCE

POWERPACK 42

Richard Beckett has been working hard again, and this month he brings us a solid chunk of sound advice for this stunning *Stormlord* sequel.

FAIRIES There are a maximum of 28 fairies to rescue, all of which are found on level one. However, they can be stolen on level two by the birdmen, so take care. The more fairies you rescue, the more points you receive at the end of the game, and what do points make...?

BUBBLES These always come from the same place and rise slowly up the screen, so watch out for bubbles below you. If a bubble is at the top of the screen wait a little, as it will instantly appears at the bottom as soon as it leaves the top. They cannot be shot. Large blue bubbles, however, act as platforms, but be careful as they sink beneath your feet.

BATS These are easily disposed of, and need just one hit to kill. They don't re-appear once killed, and won't harm you if you're standing still... so stand still while you shoot them.

WATER DROPLETS These usually appear at stalactites, and are easily avoided. Wait until they're parallel with your legs then perform a double-jump.

GOBLINS These require three hits to kill, and you can avoid their bullets simply by ducking (as long as they're on the same level as you, that is).

SPIDERS These beasts are indestructible. However, rather than running under them, try jumping on their backs (only the head is dangerous).

FALLING ROCKS These can be very difficult to pass safely. If you can't avoid them, let yourself get hit and then run past while you're still invincible.

FALLING EGGS If you stay at the far right of the screen, they will never, ever hit you. Ever.

GREEN DRAGONS These require only three hits to kill, but you should only shoot the ones in your way.

GREEN JUMPING GUARDIANS Duck in the middle of the floor and fire repeatedly to defeat these beasts (20 shots should do it). With any luck, they'll jump over you and their bullets will miss you.

BEES They act in much the same way as the bats mentioned earlier, but they're faster. Deal with 'em in the same way.

GHOSTS These come onto the screen quickly, so don't go too near the edge. Creep forward and shoot them (each takes one hit to kill).

SPIKY ROPE PLATFORMS These are similar to the spiders, but require slightly different tactics. Wait beside them, then run underneath when it's safe.

BROWN DRAGONS Completely harmless, and you can safely jump on their backs for a free flight.

FROGS Pretty easy to dispose of – simply shoot them in mid-jump (when they are level with your head). They only need one hit to kill.

WINGED DEMONS Stand at the side of the screen, then jump and shoot simultaneously. When they first appear, they won't reach the side of the screen. Be careful of these on level two, as they will steal fairies from you. In this case, shoot them as soon as they appear.

ZOMBIES - They rise from the ground in the centre of the screen, so simply stay at the edge and shoot as they appear (one hit should do the trick).

SNAKE SKULLS Avoid standing directly under them, as bits of 'em drop off. Avoid them rather than shoot, as they disappear pretty quickly anyway.

FOUR-SKULLED MONSTER Shoot each of its heads in turn – roughly five shots are needed for each one. As it passes overhead, duck to avoid it (use any special weapons available).

ICICLES These drop when you walk underneath, so keep your distance and shoot them until they fall.

BOULDERS All you can do is jump over these.

RAINCLOUDS Stand on these to get out of the rain, but keep jumping to avoid sinking through them. If you can't jump onto them, run like mad.

LIGHTNING CLOUDS Again, stand on them if possible, otherwise just shoot the lightning as it appears (one hit required).

FLOCK OF BIRDS Only shoot the ones in front of you, as there is no time to shoot the others (again, they take one hit apiece).

EAGLE If it drops eggs, shoot them rather than the eagle, then wait until it flies away. If it doesn't, use special weapons as it swoops towards you.

FLOATING ROCKS As you shoot them, they split into two smaller rocks. Destroy them one at a time, as the smaller rocks are harder to avoid.

METEOR STORM Simply run through it while firing special weapons upwards.

EVIL FAIRY The final guardian! Stand next to the rock which it's perched on, where you are safe from flak, then jump up between lightning bolts and shoot it a mere 50 times to complete the game. Hurrah.

GIMME! GIMME! GIMME!

And we don't mean a man after midnight. But we are prepared to reward a splendid £20 Software voucher to the sender of any decent tips, maps,solutions, Action Replay POKES or general gameplaying advice . Post your gear to: Andy Roberts' Gamebusters, *Commodore Format*, 30 Monmouth Street, Bath, Avon BA1 2BW. Don't forget to include your name and address, along with some chocolate chip muffins or pizza.

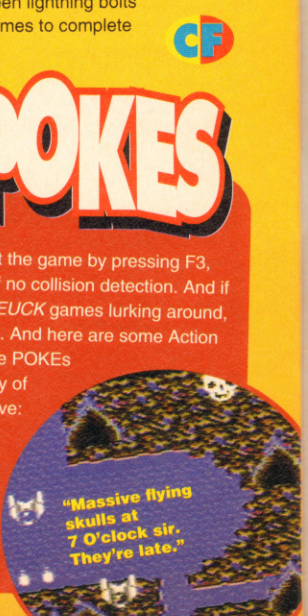
ACTION REPLAY POKES

PUD & DAWSY, SUB BURNER, CHAOS ROAD AND SKULZ

(POWERPACK 43)

Here's a handy trick for anybody with an Action Replay cartridge (they really are quite groovy). Simply load up the game, press fire to start, then prod the freeze button. Press K , followed by C, and you can now restart the game by pressing F3, with the added bonus of no collision detection. And if you have some more *SEUCK* games lurking around, try this trick on them too. And here are some Action Replay cartridge POKEs that work on any of the games above: POKE 19305,142 and POKE 20089,142 for infinite lives. Okay?

Anyone for pud?



"Massive flying skulls at 7 O'clock sir. They're late."

SOS

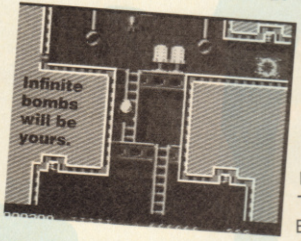
SAVE OUR SPRITES

It's back! The section where we give you the cheats that you demand. Ain't that touching?

RICK DANGEROUS 2

US GOLD/KIXX

Rick Dangerous 2 is a by-word for "feindishly tricky" so we've provided this listing for infinite lives, bombs and bullets. If you don't fancy typing in the listing, try this cheat: On the high score table,enter your name as JE VEUX VIVRE for infinite lives.



```
0 REM RICK D II
CHEAT BY WAZ
1 FOR X=543 TO
583:READ
Y:C=C+Y:POKE X,Y:NEXT
2 FOR X=400 TO 431:READ Y:C=C+Y:POKE
X,Y:NEXT
3 IF C<>8658 THEN PRINT "DATA ERROR":END
4 INPUT "INFINITE LIVES Y/N";A$
5 IF A$="N" THEN FOR X=400 TO 415:POKE
X,234:NEXT
6 INPUT "INFINITE BOMBS Y/N";B$:IF B$="N"
THEN POKE 417,1
7 INPUT "INFINITE BULLETS Y/N";C$:IF C$="N"
THEN POKE 422,1
8 POKE 157,128:SYS 543
10 DATA 032,044,247,056,169,021,141,177
11 DATA 003,169,055,141,178,003,169,106
12 DATA 141,179,003,032,108,245,169,076
13 DATA 141,196,224,169,144,141,197,224
14 DATA 169,001,141,198,224,032,191,003
15 DATA 096,169,000,141,251,030,169,234
16 DATA 141,222,063,141,223,063,141,224
17 DATA 063,169,000,141,089,039,169,000
18 DATA 141,006,040,141,104,059,108,022
19 DATA 000
```

● Help requested by: Chris Peacock, Matthew Sampson, Nick Dey, Dean Robson, Matthew Shenton, Chris Valentine, Craig Drunnan, Kevin Hollowed, Ian Conway and Scott Gibson.

LICENCE TO KILL

DOMARK/HIT SQUAD

This Domark classic is undoubtedly the best Bond game to date, but it's a toughie too. As luck would have it, here's a smart listing for infinite lives and/or infinite energy – simply type it in, SAVE for future use, then RUN it. What would we do if we couldn't rely on this WAZ bloke for divine light?

```
0 REM L-T-K CHEAT BY WAZ
1 FOR X=528 TO 590:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>6865 THEN PRINT "DATA ERROR":END
3 INPUT "INFINITE LIVES Y/N";A$:IF A$="N"
THEN POKE 556,206
4 INPUT "INFINITE ENERGY Y/N";B$:IF B$="N"
THEN POKE 576,206:POKE 584,8
5 POKE 157,128:SYS 528
10 DATA 169,029,141,040,003,169,002,141
11 DATA 041,003,032,086,245,169,011,141
12 DATA 206,001,169,034,141,207,001,096
13 DATA 087,065,090,169,173,141,091,037
14 DATA 141,129,049,141,220,061,141,163
15 DATA 063,141,247,115,141,135,216,169
16 DATA 173,141,123,049,141,133,125,169
17 DATA 000,141,108,049,076,027,008
```

● Help requested by: Anthony Proctor, Jonathan Dodd, S G Wigley, Gareth Richards, (not the) Peter Weir, Allan Price, JA Bracewell, Scott Grant, John Conlon, Robert Mitchell and Remco Komduur. So now you can all jump with delight at the prospect of having your name mentioned in the best computer mag on the planet. You lucky people, you.

SIX STEPS FOR INNER PEACE

1. Get hold of a postcard or sealed envelope.
2. Jot down the game(s) you're stuck on (including the publisher).
3. Specify the type of cheat you'd prefer – we'll even deal with specific, 'how do you get past the rock cake on level three of...?' type queries.
4. Include your name & address.
5. Stick a stamp on the front and post it to: SOS, *Commodore Format*, 30 Monmouth Street, Bath, Avon, BA1 2BW.
6. Meditate on Tuesdays.

TURRICAN 2 (DISK VERSION)

US GOLD

Turrican 2 – without a doubt one of the best ever platform romps ever released, ever. It was a bit difficult in places, though, wasn't it? No-one had any fun when they ran low on energy, though, did they? Well, our saviour WAZ has the answer, in the form of an unbelievably stonking listing POKE, which offers infinite lives, energy, time and power lines. If that wasn't enough, it also makes the tea and does the washing up. Simply type in the listing, RUN it, then follow the on-screen prompts for a heavy dose of sheer gameplaying ecstacy. It's simple, really.

```
0 REM TUZ 2 DISK CHEAT BY WAZ
1 FOR X=544 TO 599:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>5162 THEN PRINT "DATA ERROR":END
3 INPUT"INFINITE LIVES Y/N";A$:IF A$="N"
THEN POKE 580,1
4 INPUT"INFINITE ENERGY Y/N";B$:IF B$="N"
THEN POKE 595,222
5 INPUT"INFINITE TIME Y/N";C$:IF C$="N"
THEN POKE 590,206
6 INPUT"INFINITE LINES Y/N";D$:IF D$="N"
THEN POKE 585,1
7 PRINT CHR$(147);"INSERT DISK AND PRESS A
KEY"
8 POKE 198,0:WAIT 198,1:SYS 544:LOAD
"*",8,1
10 DATA 120,169,045,141,020,003,
169,002
11 DATA 141,021,003,088,096,169,064,141
12 DATA 026,144,169,002,141,027,141,076
13 DATA 049,234,087,065,090,032,057,050
14 DATA 032,003,128,169,000,141,071,075
15 DATA 169,000,141,145,075,169,173,141
16 DATA
013,012,169,189,141,049,076,096
```

● Help requested by Simon Perry, John Nichols and Stuart Henderson.

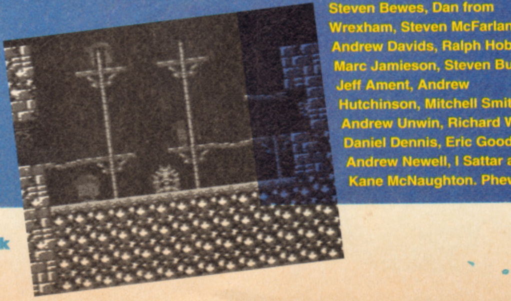
RICK DANGEROUS

US GOLD/KIXX

Even super-humans have their off days, so it comes as no surprise that *Rick Dangerous* needs the odd helping hand from time to time. If you'd like infinite lives to play with, here's a listing POKE especially for you.

```
0 REM RICK D CHEAT BY WAZ
1 FOR X=543 TO 591:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>5989 THEN PRINT "DATA
ERROR":END
3 POKE 157,128:SYS 543
10 DATA 032,044,247,056,169,
021,141,177
11 DATA 003,169,055,141,178,
003,169,106
12 DATA 141,179,003,032,108,245,169,076
13 DATA 141,214,224,169,072,141,215,224
14 DATA 169,002,141,216,224,032,191,003
15 DATA 096,169,240,141,157,014,108,022
16 DATA 000
```

● Help requested by: Nicholas Deeney, Craig Watt, Bobby Shek, Scott McMala, Robert McDowell, James Green, Brad Langford, Mark Osborne, Gary Ramshaw, Craig Holland & Andrew Johnston, P Simpson, P Harvey, Leighton Ellett, Mrs S Batt, Amar Dhol, Matthew East, John Morley, catherine Wetton, Sam Vandemburg, Steven Bewes, Dan from Wrexham, Steven McFarlane, Andrew Davids, Ralph Hobbs, Marc Jamieson, Steven Burns, Jeff Ament, Andrew Hutchinson, Mitchell Smith, Andrew Unwin, Richard Wand, Daniel Dennis, Eric Goodale, Andrew Newell, I Sattar and Kane McNaughton. Phew!



With a name like that, d'you think he got typecast just a little bit?

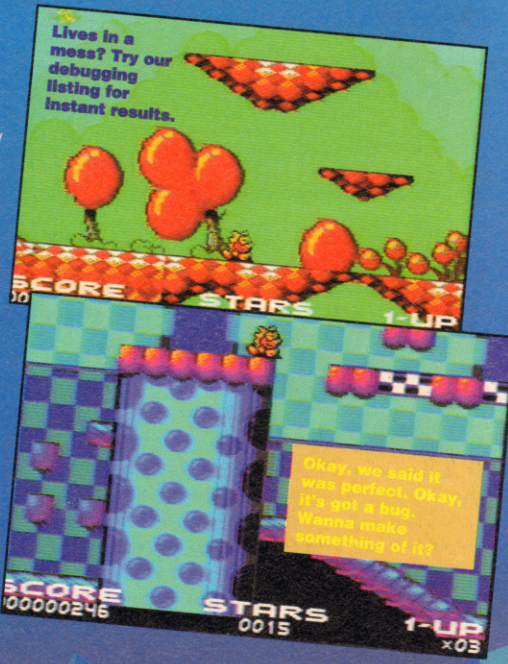
LISTOMANIA POKERAMA

Flex those fingers and hammer those keys, 'cos it's type-ins time. The secrets of infinity will be yours...

MAYHEM IN MONSTERLAND (APEX)

The finished version of *Mayhem in Monsterland* contains a small bug which affects the lives counter during the game. This oversight can be corrected by using either of these two listings, depending on which version you own.

```
0 REM MAYHEM FIX BY MARTIN PUGH
1 FOR X=520 TO 617:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>11297 THEN PRINT "DATA
ERROR":END
3 POKE 157,128:SYS 520
10 DATA 032,044,247,160,017,140,064,003
11 DATA 136,140,062,003,032,108,245,169
12 DATA 032,141,233,016,169,061,141,234
13 DATA 016,169,002,141,235,016,162,157
14 DATA 189,158,016,157,158,002,202,208
15 DATA 247,169,166,141,020,003,169,002
16 DATA 141,021,003,208,254,141,013,220
17 DATA 072,169,032,141,240,003,169,082
18 DATA 141,241,003,169,002,141,242,003
19 DATA 104,096,169,093,141,213,192,169
20 DATA 002,141,214,192,096,098,002,072
21 DATA 077,080,169,009,141,210,102,108
22 DATA 022,000
```



Lives in a mess? Try our debugging listing for instant results.

Okay, we said it was perfect. Okay, it's got a bug. Wanna make something of it?

```
0 REM MAYHEM DISK FIX BY WAZ
1 FOR X=50432 TO 50491:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>7599 THEN PRINT "DATA ERROR":END
3 PRINT CHR$(147);"INSERT DISK & PRESS A
KEY"
4 POKE 198,0:WAIT 198,1:SYS 50432
10 DATA 169,001,168,162,008,032,186,255
11 DATA 169,001,162,051,160,197,032,189
12 DATA 255,169,000,032,213,255,169,038
13 DATA 141,043,195,169,197,141,044,195
14 DATA 076,064,194,087,065,090,169,052
15 DATA 141,253,084,169,197,141,254,084
16 DATA 076,237,082,050,169,009,141,210
17 DATA 102,076,128,001
```

TIMES OF LORE

US GOLD/ORIGIN

Having trouble with this sprawling role-playing game? Can't find the right spell to defeat the Grand Wizard Gargle? Fed up with reading boring intros that have been written by someone who's read *Lord of the Rings* once too often when you'd rather be typing in a cheat? Having a party and haven't invited me? Hah, you don't deserve this listing.

```
0 REM TIMES OF LORE CHEAT BY WAZ
1 FOR X=525 TO 573:READ Y:C=C+Y:POKE
X,Y:NEXT
2 FOR X=451 TO 458:READ Y:C=C+Y:POKE
X,Y:NEXT
3 IF C<>6258 THEN PRINT "DATA ERROR":END
4 POKE 157,128:SYS 525
10 DATA 032,086,245,169,032,141,181,003
11 DATA 169,002,141,183,003,076,066,004
12 DATA 087,065,090,238,032,208,169,234
13 DATA 141,042,038,141,043,038,141,044
14 DATA 038,169,173,141,037,018,169,195
15 DATA 141,192,019,169,001,141,193,019
16 DATA 096,169,192,141,231,010,076,224
17 DATA 020
```

POWER PACK

SUB BURNER

It's nice to see a *SEUCK* game with a little extra sparkle, and *Sub Burner* certainly has that. Now it also has an infinite lives.

```
0 REM SUB BURNER CHEAT BY WAZ
1 FOR X=516 TO 541:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>2818 THEN PRINT "DATA ERROR":END
3 POKE 157,128:SYS 516
4 DATA 032,086,245,169,019,141,207,003
5 DATA 206,208,003,096,087,065,090,169
6 DATA 142,141,120,062,141,012,065,076
7 DATA 230,003
```

SKULZ

If this game is driving you out of your skull (© copyright Cheap Clichés Inc.), why not give this listing a try?

```
0 REM SKULZ CHEAT BY WAZ
1 FOR X=516 TO 554:READ Y:C=C+Y:POKE
X,Y:NEXT
2 IF C<>3792 THEN PRINT "DATA
ERROR":END
3 POKE 157,128:SYS 516
4 DATA 032,086,245,169,019,141,207,003
5 DATA 206,208,003,096,087,065,090,169
6 DATA 032,141,013,010,169,002,141,014
7 DATA 010,076,230,003,169,142,141,146
8 DATA 062,141,162,065,076,013,008
```

PUD & DAWSY

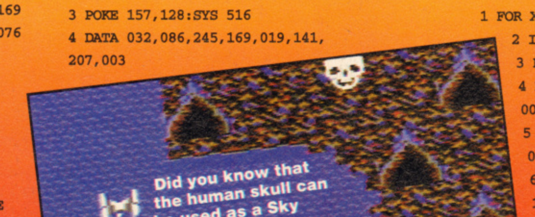
Not two months after the game was released, there is already an official *Pud & Dawsy* infinite lives POKE. Don't you just love merchandising?

```
0 REM PUD & DAWSY CHEAT BY WAZ
1 FOR X=516 TO 554:READ Y:C=C+Y:POKE X,Y:NEXT
2 IF C<>3756 THEN PRINT "DATA ERROR":END
3 POKE 157,128:SYS 516
4 DATA 032,086,245,169,019,141,
207,003
5 DATA 206,208,003,096,087,065,090,169
6 DATA 032,141,013,010,169,002,141,014
7 DATA 010,076,230,003,169,142,141,119
8 DATA 071,141,135,074,076,013,008
```

CHAOS ROAD

Now you can turn *Chaos Road* into Peaceful Avenue (*as long as it doesn't turn into Coronation Street we're okay – Dave*), simply by typing in this intricately crafted listing for infinite lives. Street party on!

```
0 REM CHAOS ROAD CHEAT BY WAZ
1 FOR X=516 TO 554:READ Y:C=C+Y:POKE X,Y:NEXT
2 IF C<>3848 THEN PRINT "DATA ERROR":END
3 POKE 157,128:SYS 516
4 DATA 032,086,245,169,019,141,207,
003
5 DATA 206,208,003,096,087,065,
090,169
6 DATA 032,141,013,010,169,002,
141,014
7 DATA 010,076,230,003,169,142,
141,169
8 DATA 067,141,185,
070,076,013,008
```



Did you know that the human skull can be used as a Sky satellite dish? Probably not, since it's blatantly untrue.

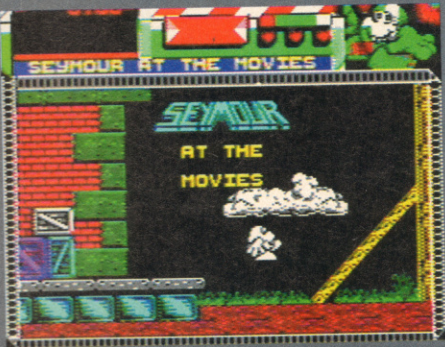
SEYMOUR goes to HOLLYWOOD

Movie sequels are rarely as good as the originals but this second part of our complete solution to Seymour's LA antics is Oscar-winning stuff.

PART 2

Just a little later than advertised, it's the second and final part of our complete *Seymour* solution. And just in case you're missing the first part, race back to *CF*42 for the story so far. On with the info...

Go L • U • drop BODY and FOOT • D • R • R • L • U between gap • U between gap • U between gap • collect both HANDS and the HEAD • R • L • R • R • enter door • L • U • drop HANDS and HEAD • D • R • R • L • U between gap • U between gap • U between gap • L • L • L • L • L • collect LOLLIPOP • L • L • enter door • collect COIN • enter door • R • R • R • R • R • R • R • drop LOLLIPOP • collect LEG • R • L,R • R • enter door • L • U • drop LEG and COIN • D • R • enter door • L • collect LEG • enter door • collect ARM • L • U between gap • L • enter door • R • L (on top) • collect GLOVES • R • L (on bottom) • enter door • L • L • R • enter door • L • U • D (left side) • drop LEG and ARM under table • U • collect LEG and HAND • D (left side) • drop LEG and HAND under table • U • collect HEAD and HAND • D (left side) • drop HEAD and HAND under table • U • collect BODY and FOOT • D (left side) • drop BODY and FOOT under table • U • D (right side) • R • R • L • U between gap • U between gap • U between gap • collect ARM • R • L • R • R • enter door • collect FOOT • L • U • D (left side) • drop FOOT and ARM under table • U • collect COIN • D (left side) • put COIN in MACHINE • hit SWITCH • U • HIT SWITCH • HIT SWITCH again when FRANKIE lives • D (left side) • collect KEY • R • D • collect BRAIN • R • L • U between gap • U between gap • U between gap • drop BRAIN and GLOVES • collect DAGGER and BUTTY • R • L • L • L • use KEY on DOOR • enter door • U • U • give BUTTY to KING KONG • Use DAGGER on HOSTAGE chains • collect MEDAL • D • D • L • go U between gap • U between gap • enter door • collect HEART • L • L • R • U between gap • U between gap • collect BRAIN • R • L • enter door • D • U (left side) • U • L • D • give all objects to DOROTHY • collect TOWEL • L • L • U between gap • enter door • type on COMPUTER (the one in the game) • stand on MACHINE • drop TOWEL and move out of the way before you teleport • if the towel teleports go L • L • R • U between gap • U between gap • L • L • U • U • R • D • U (right side) • L • collect POTION (you will be invisible while you walk • so stop moving to see where you are) • R • D • U (left side) • L • D • D • R • R • R • L • L • U between gap • enter door • type on COMPUTER and stand on MACHINE to teleport • R • L (on top) • run through MING using the POTION • collect DETONATOR • R • type on COMPUTER and stand on MACHINE to teleport • drop POTION • L • L • R • U between gap • U between gap • L • L • U • U • L • drop DETONATOR to blow up the SAFE (if the EXPLOSIVES are in the right place) • enter door • collect SCRIPT.



The weather forecast said to expect localised showers but this is getting ridiculous.

SEYMOUR AT THE MOVIES

Be honest – would you want to get stuck behind a popcorn-munching geek like this at the cinema?

You now need to hold the SCRIPT, then collect OSCARS and give them to certain people. They are:

- The secretary
- Tarzan
- The pirate
- Dorothy
- The prisoner
- The dead body
- Ming
- Frankenstein
- Rick Bracy
- The cowgirl
- King Kong
- The hostage
- The biker
- Lil
- Woman in grease shop
- Security guard.

And the location of these Oscars?

- The lift (behind flower)
- Inside a treehut (bottom-left, behind case)
- Myamba tree huts (behind leaves)
- Castle exit (behind leaves)
- Lock-up (behind case)
- Sherlock Bones (behind leaves)
- Space base (air grill)
- Frank Einstein (behind railing)
- Secret lab
- Staircase (chandelier leg)
- Bedroom (bedknob)
- Corridor (case),
- Crops department (barrel)
- More tree huts (window)
- Inside a tree hut (to the top-right, behind the barrel).
- And the final Oscar...? Now that would be telling.

CHEERS!

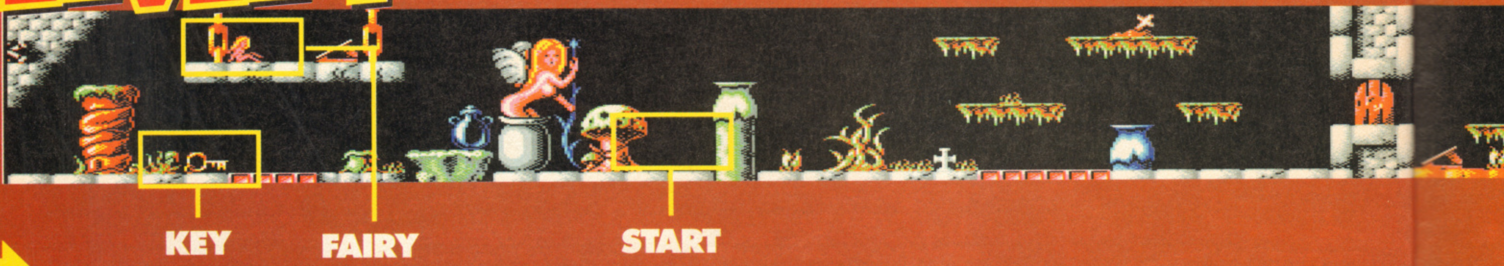
Many thanks to the dozens of you who sent in tips, tricks and solutions for *Seymour Goes To Hollywood*, especially Richard Beckett whose solution I decided to use. If you have any tips or advice which you think might be useful, send it in – we'll reward your efforts handsomely.

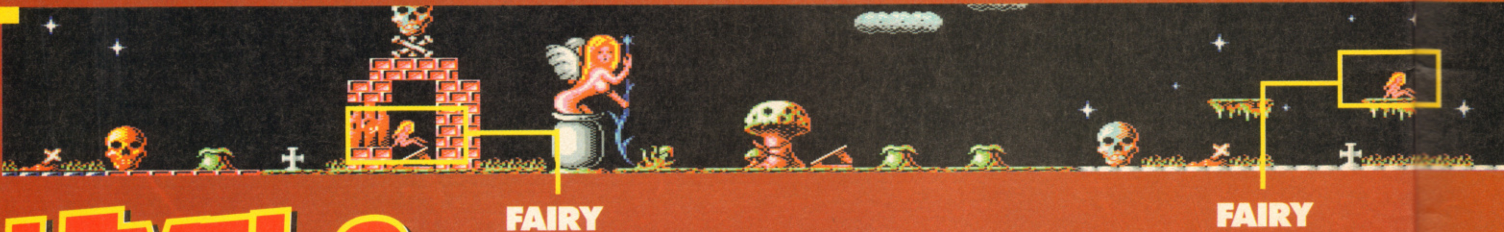
STORMLORD

Storm warning! Storm warning! This awesome CF42 Power Pack game ain't no breeze. But follow this complete solution and you'll be storming through it like lightning, or a Force 10 gale, or a... (yes, we get the point – Ed).

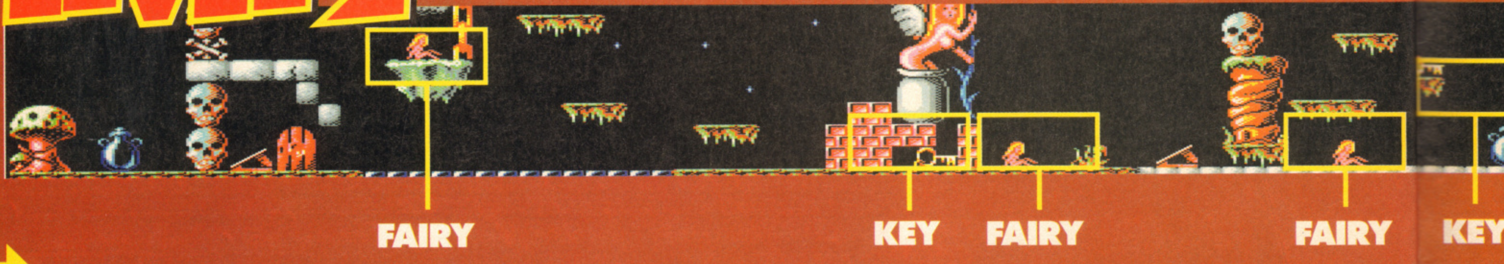
PART ONE

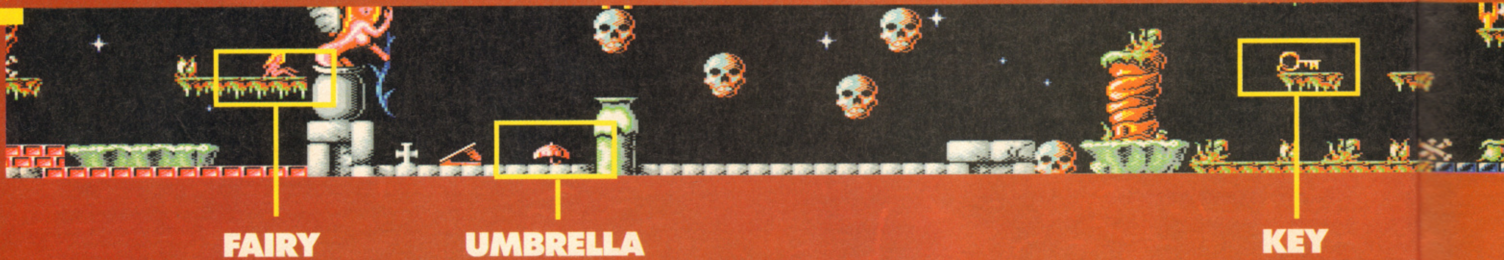
LEVEL 1


KEY
FAIRY
START


FAIRY
FAIRY

LEVEL 2


FAIRY
KEY
FAIRY
FAIRY
KEY


FAIRY
UMBRELLA
KEY

LE
From
the s
unde
the c
from
telep
adjac
you
and
right
as yo
whic
go b
the s
the H
Swa
(and
your
sphe
resc
then

LEVEL 1

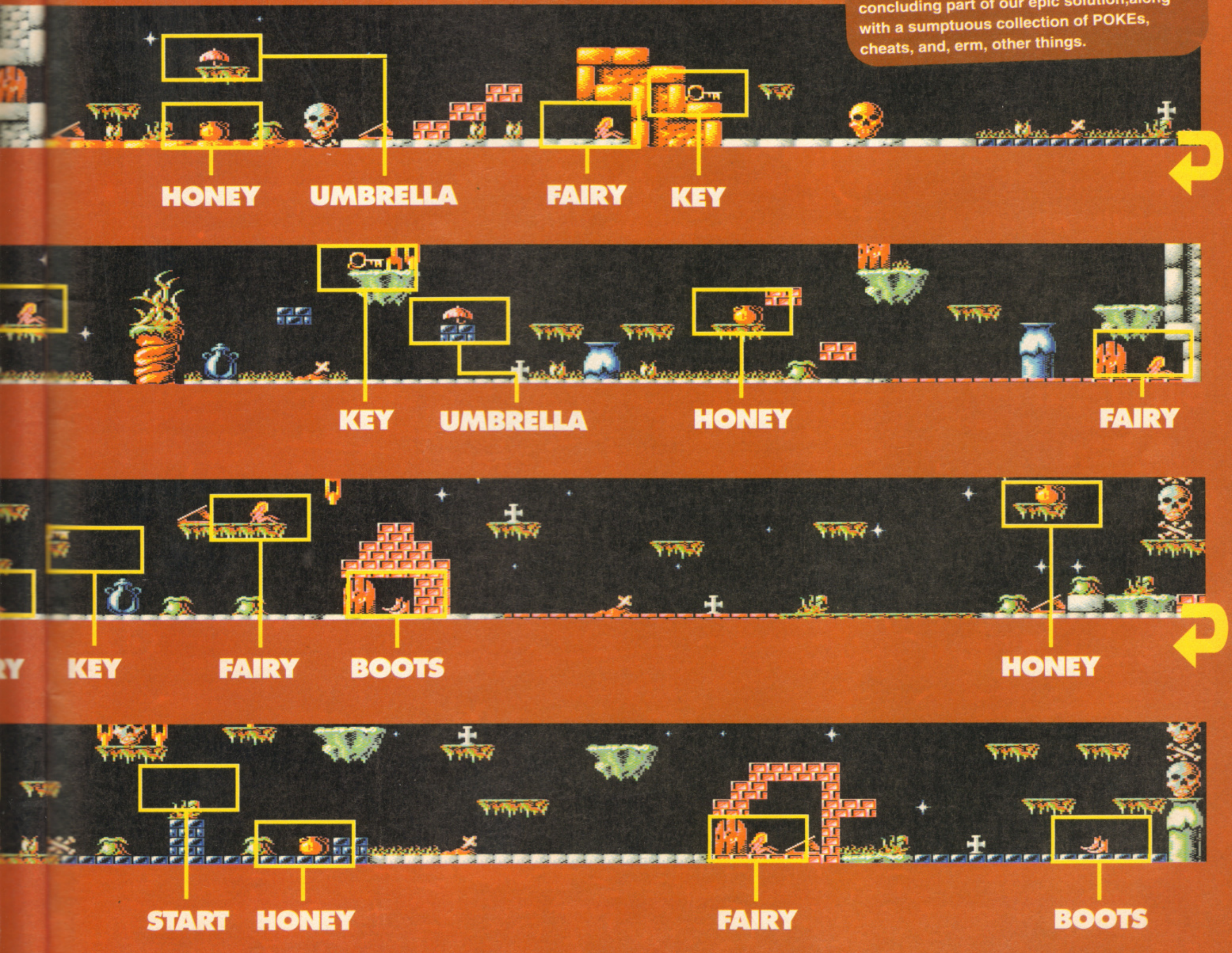
From the start: Go left over the obstacles, wait for the seed to pop out of the bag, then walk quickly underneath and collect the KEY. Go right and open the door, avoiding the small worms which appear from the ground. Go right, use the springboard to teleport and rescue the FAIRY, then use the adjacent springboard to get back. As you descend, you will collect the UMBRELLA. Carefully go right and teleport using the springboard, then carefully go right underneath the rain clouds (you're safe as long as you have the umbrella). Shooting any dragons which appear, go right and collect the FAIRY, then go back to the left. Walk under the clouds, then use the springboard. Go left and swap the umbrella for the HONEY, then head right until you reach a key. Swap the honey with the KEY to attract the bees (and get out of the way!), then collect the FAIRY to your left. Make your way to the right, shooting any spheres which descend, then open the door and rescue the FAIRY. Teleport using the springboard, then head right (be careful of the disappearing platforms) and collect the HONEY. Go left and swap the honey with the UMBRELLA (again, get out of the way before the bees arrive), then climb up and collect the KEY. Make your way to the far right and open the BOTTOM door to rescue the final FAIRY (don't open the top door – you'll lose the key and have to start again).

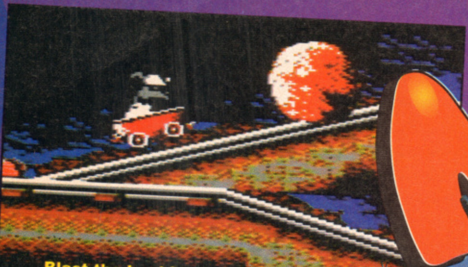
LEVEL 2

From the start: Head left past the seed-popper (beware of the disappearing platform) and collect the KEY. Go back to the right, shooting any pawns which drop from the sky, then open the door and rescue the first FAIRY. Continue right to the far-side of the level and collect the BOOTS (again, shoot any pawns which appear). Go back to the left, and teleport using the springboard you saw a moment ago, then head left past the spiky plants and worms until you reach the umbrella (the boots will let you jump over any unusually high objects). Swap the boots for the UMBRELLA, then use the springboard to your left. Rescue the FAIRY, then head right and, shooting any dragons which fly onto the screen, stand on the red bricks to make them disappear. Swap the umbrella for the KEY. Go left, killing any dragons in the way, then open the door and use the springboard. Grab the FAIRY to your left, then use the springboard to your right. Carefully go right past the falling spheres, then use the springboard (you'll collect the HONEY as you fly up). Swap the honey with the KEY and grab the FAIRY to the left, then go right, open the door and collect the boots inside. Go left a little and rescue the FAIRY at the top of the screen, then use the adjacent springboard to teleport; now simply collect the FAIRY to your right to finish the level. CF

NEXT MONTH

Join us next month for the second and concluding part of our epic solution, along with a sumptuous collection of POKEs, cheats, and, erm, other things.





Blast the boulder then it's onwards to gold and glory.

NOBBY the AARDVARK

PART 7

It's been seven months since Nobby started his epic quest to reach Antopia. He's traversed broken railways, ballooned through canyons and even rocketed to Mars. And now, only one thing stands in his way...

LEVEL 7: ABANDONED ORE REFINERY

This is it! The last level, the final obstacle, the, erm, end thing. In the usual *CF* style we've opted for a full solution, but you'll have to make-do without a map. As you will see, the ore refinery is a huge sprawling mass of caves and track that'd take up half the mag if we tried to reproduce it as a map, but the grabs dotted around this page should give you a fair illustration of the obstacles that you'll be facing. Anyway, enough of this small talk... Antopia awaits!

From the start: Make your way to the right and jump over the barrier, ducking as you jump in order to avoid the cave-bats (this takes lots of practice). Now continue right until you reach a pink switch. If you're not feeling adventurous, skip the next part. Shoot the switch to move it, then head right up the slope. As soon as the boulder appears, fire two bombs at it (you need to be ducking to do this), while simultaneously moving back to avoid the monstrous sphere.

If you managed to blast the boulder into a million pieces (give or take a few thousand), continue right, jump over the barrier and collect the gold bar. Jump over the gap and collect the next few gold bars then carefully make your way back to the switch junction (jumping over any obstacles on the way).

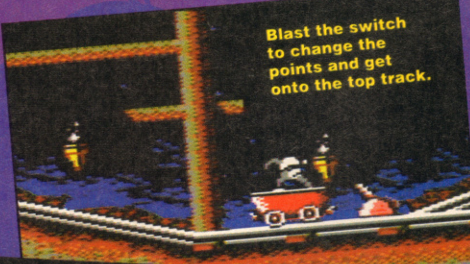
From here on in, it is essential to stay crouched for the downhill and uphill parts. Make your way right, crouching to avoid the hooks and bats, until the track levels out. Stop to shoot the small mouse-creature, and then continue down to the bridge on the river (*Kwai? – Ed*). Jump the barrier, then shoot the two rocks opposite before jumping the gap. Now, staying crouched, make your way up the next slope. When you see the SECOND purple bat, a huge boulder will roll towards you – deal with it in the same way as before (crouch and fire bombs whilst moving away from it).

When you reach the junction, you can flip the switch as before and take the upper track to collect no less than seven lovely gold bars (as before, you'll have to negotiate your way backwards to the junction). But you can take the coward's way and simply carry on ever-downwards.

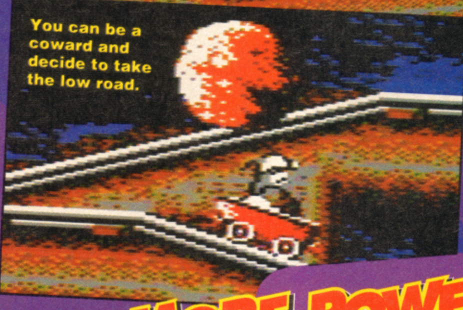
When the track levels out, shoot any obstacles in your way and jump over the barriers and gaps as before. At the top of the next slope lurks another huge boulder (you're probably expecting them by now) – deal with as before. From this point on, the track remains horizontal, and it's a fairly straightforward task to shoot or jump any obstacles in the way.

Look out for one final gold bar. Once you've collected that be prepared to tackle yet another one of those huge boulders (which MUST be destroyed if you want to finish the game – there's no avoiding this one). And then, just across the next gap is the ACME crate which contains Nobby's ticket to Heaven (or is it?).

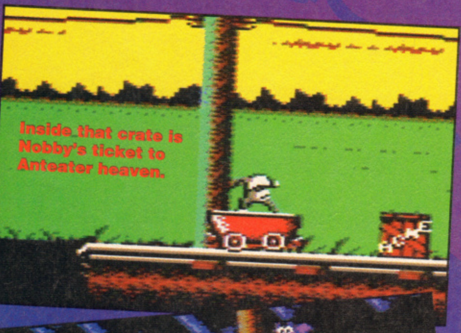
So there you have it, game complete! Put your feet up and watch the hilarious end sequence... (which we're not going to give away here). I bet Nobby wasn't expecting THAT! CF



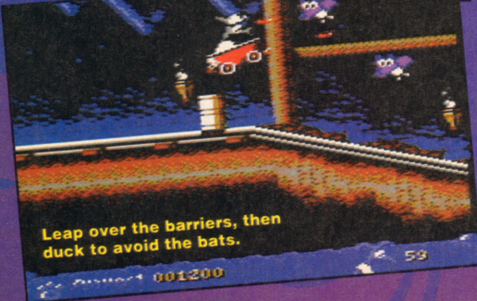
Blast the switch to change the points and get onto the top track.



You can be a coward and decide to take the low road.



Inside that crate is Nobby's ticket to Anteater heaven.



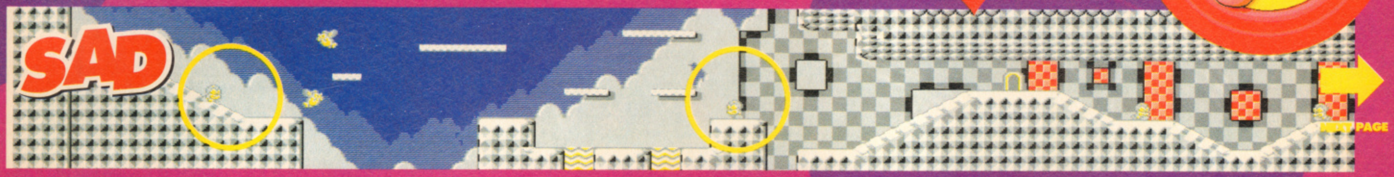
Leap over the barriers, then duck to avoid the bats.

MORE POWER FOR YOUR NOBBY

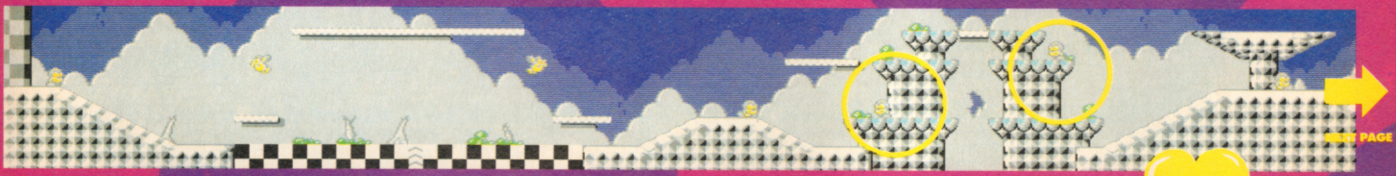
What, no listing? In fact, this simple cheat mode has all the benefits of an infinite lives listing, without all those cumbersome DATA statements (and the perpetual headache that a DATA ERROR can bring). On the title screen, simply type PLOPPYPANTS (without a space). With any luck, the border will change colour, allowing you to start the game with more aardvarks than you can possibly use in one go.

MAYHEM

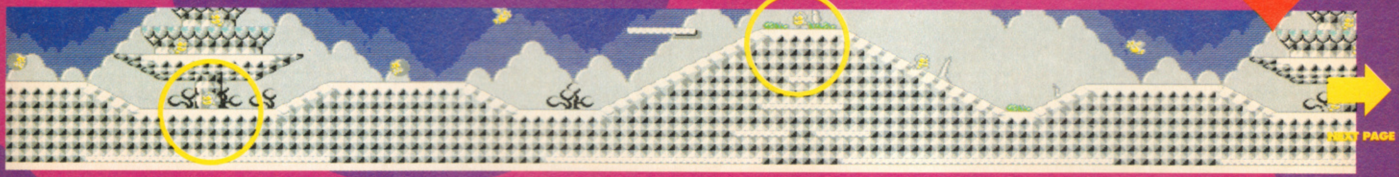
CHERRYLAND

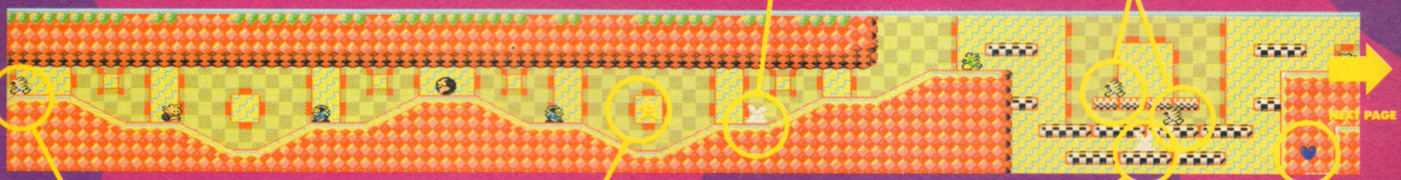

SAD
NEXT PAGE

STAGE 4: **TIME LIMIT: 250** **DUST QUOTA: 10** **STAR QUOTA: 250**



RINGED ALIENS LEAVE MAGIC DUST





SCORE MULTIPLIER

10 STARS

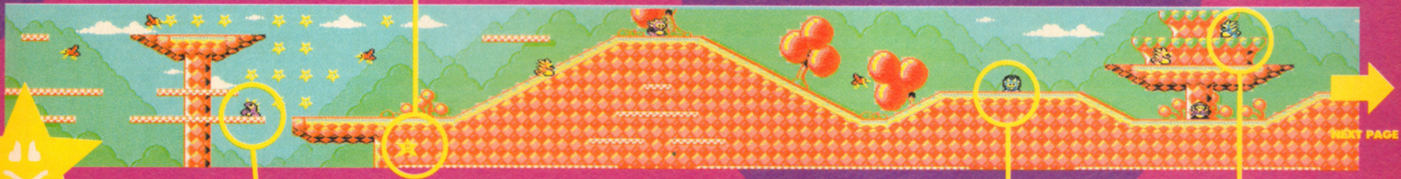
EXTRA LIFE

10 STARS

SCORE MULTIPLIER

HALF LIFE

10 STARS

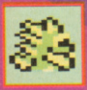


SCORE MULTIPLIER

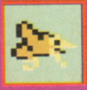
SCORE MULTIPLIER

10 STARS

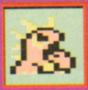
CAST OF MONSTERS



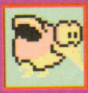
SPIKEY SPITTER This appears regularly throughout the level, and comes invarious guises; some just follow you, some spit, some spit and follow and some run rather quickly.



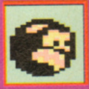
FLAPODACTYL Much the same as the versions on earlier levels, but the birds on Cherryland seem to swoop a lot more than usual.



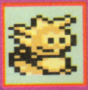
SPIKEY BLURP JNR Apart from ever faster bullets, this little blighter also has the added protection of spikes, making him especially difficult to kill.



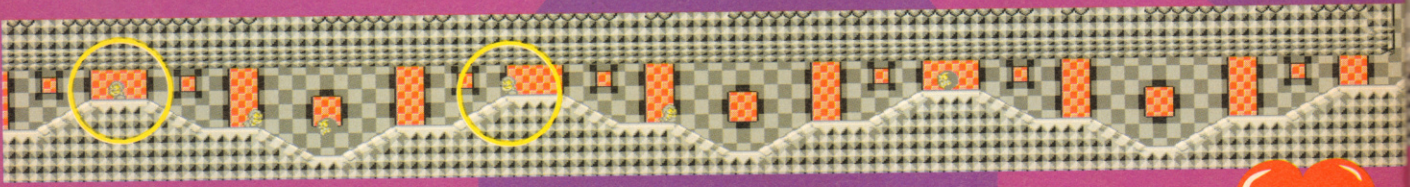
BALLODACTYL A rather gentle bird, the Ballo rarely gets in the way, andcan be charged through without any problems. Avid jumping on him.

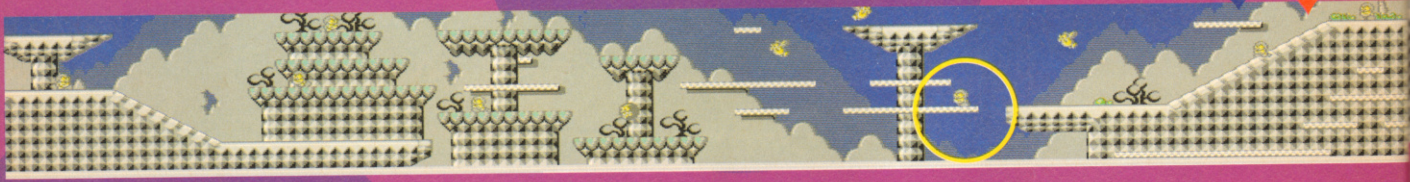


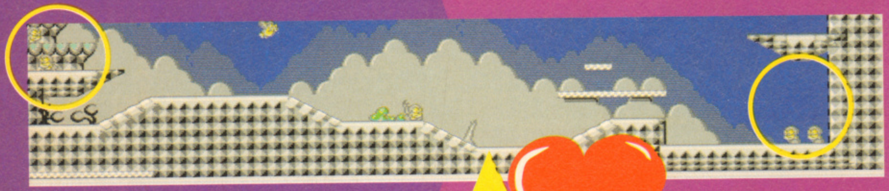
CANNONBALL As on previous levels, this is indestructable, and there are load of them bouncing around the level. In the 'tunnel' to the left of the level, there is a cannonball that falls to block your path.

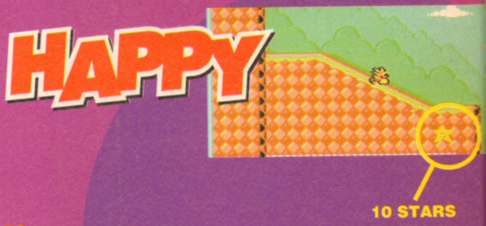


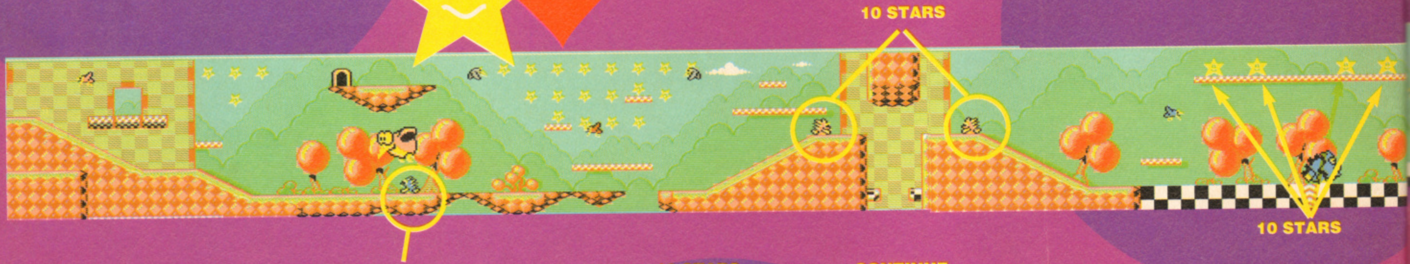
SPIKES & SHELL Despite the wussy name, this bloke is virtually indestructable... his one weakness

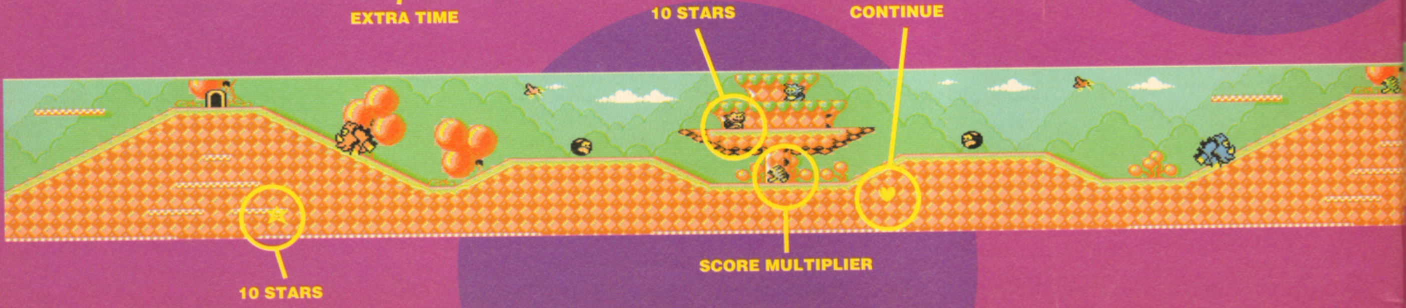




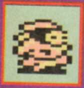




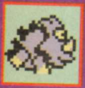




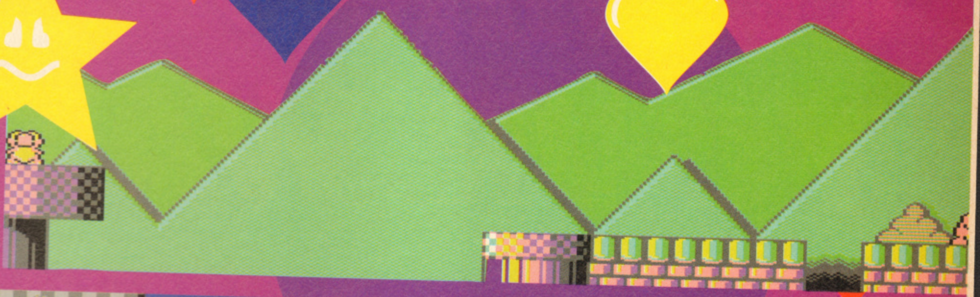
is that you can charge into the front of him (but he's pretty harmless, anyway).

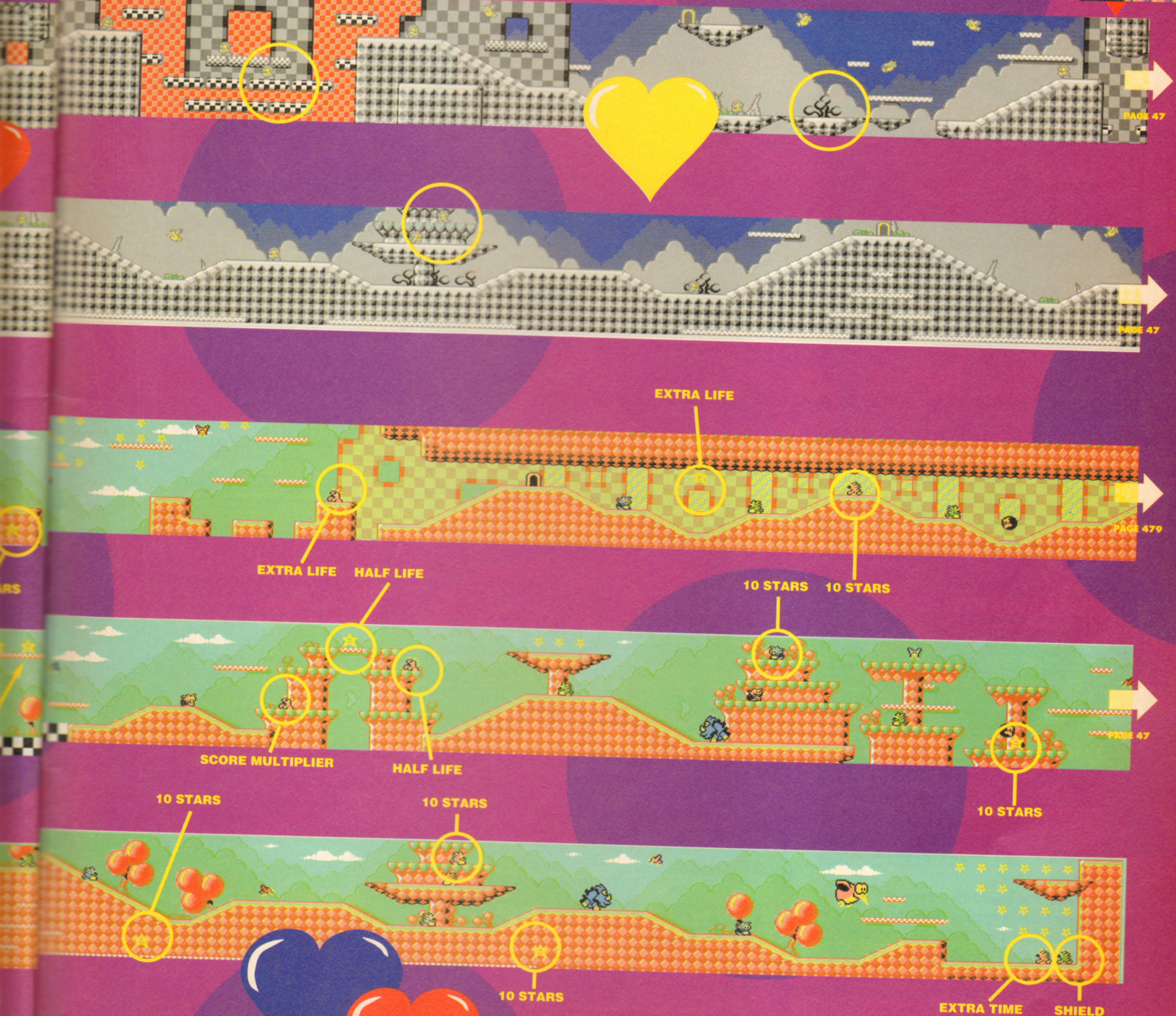


BANDIT Again, if you're after the Super Star Bonus, avoid this brand of baddie at all costs. There are a couple dotted around the level, so take care not to touch them.



STEGOSAURUS This Jurassic beast is cute, but deadly. The only way to kill it is to charge into the from the front, but this is tricky. Observe his running pattern, then charge at the right moment to obliterate the brute.




PAGE 47
PAGE 47
EXTRA LIFE
PAGE 479
EXTRA LIFE
HALF LIFE
10 STARS
10 STARS
PAGE 47
SCORE MULTIPLIER
HALF LIFE
10 STARS
10 STARS
10 STARS
10 STARS
EXTRA TIME
SHIELD

COMING YOUR WAY

MESSAGES FROM A PUBLISHER

Love the name. Let's keep that for next issue.

Right, Simon, start researching this ultimate puzzle game feature now – playtest every one you can get your hands on and recommend the top 20.

Stem, get on the case with those games. Sure we've already got Escape lined up for review and a couple of previews, but we need more. Jaunt over to Europe and see what they've got to offer.

Dave, what's on the covertape?
"Right, we've got *Bonecruncher* as the main game – a great action puzzler – plus a level of *Mayhem in Monsterland*."
Sounds great, make sure they're flagged in a big way on the cover.

Make sure all those regulars are up to the usual high standard.

CROSSWORD ANSWERS

Across: 1 Mayhem, 4 Fox, 5 NBA, 6 Hit Squad, 10 Reckless, 12 Pro, 13 Gun, 14 Slicks
Down: 2 Yeah, 3 Elite, 4 Forum, 7 Dragons, 8 Ocean, 9 Level, 11 Spec.

COMMODORE FORMAT 46

ON SALE TUESDAY 21ST JUNE

THE BEST WAY TO MAKE SURE YOU GET CF46

You know how it is. You go into the newsagent and ask him for a copy of Commodore Format. "Sorry mate, sold out," he says. Shortly afterwards the men in white coats come to take you away because it's really embarrassing for the newsagent having a grown man sobbing uncontrollably in the middle of the shop (besides it drives customers away). So make sure this never happens to you by filling in this form and handing it to Mr Newsagent pretty pronto.

Dear Mr Newsagent,
If you ordered and saved me a copy of *Commodore Format* 46 (July issue, out on Tuesday 21st June, from those wonderful people at Future Publishing) it would be to our mutual benefit. So, go on, be a mate. Please.

MY NAME

MY ADDRESS ______________________
____
____

MAG*SAVE

COMMODORE FORMAT
CF45
June 1994

Editorial & Advertising Offices:
Commodore Format, Future Publishing Ltd,
30 Monmouth Street, Bath, Avon, BA1 2BW.
Tel: 0225 442244
Fax: 0225 446019

PAGES WITHOUT ADS FILLED BY
Editor Dave Golder
Art Editor Ollie Alderton
Staff Writer Simon Forrester
Good Pub Guide Oliver Reed

PAGES WITH ADS FILLED BY
Sales Executive Rob Bennett

ASSISTANT PAGE FILLERS
Editorial
Jason Finch • Andy Roberts
Jon Wells • Digital Graffiti
Cover
Paul Kidby
Photography
Ashton James

EMERGENCY PAGE FILLERS
Sue Grant • Lisa Nicholls • Nick Aspell

PEOPLE WHO DO THINGS WITH THE PAGES WHEN THEY'RE FILLED
Production Co-ordinator Tracy O'Donnell
Ad Design Cherry Coad
Production Manager Richard Gingell
Scanners Simon Windsor, Chris Stocker, John Moore, Heath Parsons, Mark Gover
Paper Controller Fiona Deane
Production Controller Claire Thomas
Group Production Manager Judith Middleton
Postroom Operatives: Phil, Phil & Alex

THE PEOPLE WHO WANT THE PAGES FILLED BEFORE ANYBODY GETS PAID
He'll be a Publisher soon Jim Douglas
Publisher Colin Campbell
Promotions Tamara Ward
Circulation Director Sue Hartley
Managing Director Greg Ingham

ADVERTISING PROBLEMS
If you have a problem, query or complaint about an advertiser in this issue then contact The *CF* Advertising Department in writing at, Future Publishing, 30 Monmouth Street, Bath BA1 2BW.

Commodore Format is brought to you from the corridor on the third floor (the only office without a door) at Future Publishing, the home of: *GamesMaster, Super Play, Total!, Amiga Power, Amiga Shopper, Mac Format, Sega Power, Amiga Format, Amiga Format Specials, PC Format, ST Format, Amstrad Action, Edge, PC Gamer, CD-ROM Today* and *Mega*! oh and some American mags too.

Commodore Format is printed in the UK by William Gibbons and Sons.
All material © Future Publishing 1994

ABC 25,063 Jan-June 1993
Member of the Audit Bureau of Circulation

Dave would like to thank: Pulp and Blur for releasing two brilliant albums that have been playing in the office constantly this month
Ollie would like to thank: Whoever it was who decided to have so many bank holidays in such a short space of time (he's being sarcastic).
Simon would like to thank: No-one in particular

WIZARD GAMES

1 NORTH MARINE ROAD, SCARBOROUGH, NORTH YORKSHIRE Y012 7EY. IF YOU'RE IN THE SCARBOROUGH AREA, COME IN AND SEE US. OPEN 9.00AM - 5.30PM 6 DAYS A WEEK. TEL: 0723 376586

✱ C. 64 CASSETTES ✱

BONANZA BROTHERS	2.99
DALEK ATTACK	4.99
DEFENDERS OF THE EARTH	2.99
ENGLAND (FOOTBALL)	3.99
EUROPEAN SUPERLEAGUE +BOARD GAME	5.99
*FANTASY WORLD DIZZY	3.75
FLINTSTONES	2.99
FOOTBALL MANAGER 2 + EXP KIT	2.99
FOOTBALL MANAGER 3	5.99
FUN SCHOOL 2 6-8 YEARS	3.75
FUN SCHOOL 2 OVER 8	3.75
FUN SCHOOL 2 UNDER 6	3.75
HERO QUEST	3.50
HOB GOBLIN	2.99
HOOK	3.75
JACK NICKLAUS GREATEST 18	3.75
*KWICK SNAX DIZZY	3.75
LOTUS ESPRIT	2.99
LOTUS ESPRIT TURBO	2.99
LIVERPOOL	8.99
MAN UTD EUROPE	3.75
MATCH OF THE DAY	3.99
NAVY MOVES	3.75
NEW ZEALAND STORY	3.75
NICK FALDO CHAMP GOLF	10.99
NORTH AND SOUTH	3.99
PLAYDAYS AGE 3-8 YEARS	5.99
PREDATOR	2.99
Q10 TANK BUSTER	2.99
RENEGADE	2.99
RAINBOW ISLANDS	3.75
SCRABBLE (NO BOX)	2.50
SCRAMBLED SPIRITS	2.99
SHERLOCK	3.99
SIMPSONS	3.75
SLEEPWALKER	2.99
SNOWBALL IN HELL	2.99
SOOTY'S FUN WITH NUMBERS UP TO 7 YEARS	4.99
SPACE CRUSADE	3.99
SPIKE IN TRANSYLVANIA	3.75
STEG THE SLUG	3.75
SUBURBAN COMMANDO	7.99
SWITCHBLADE	2.99
TERRY'S BIG ADV/TERRAMEX	2.99
THOMAS THE TANK ENGINE	1.99
THOMAS THE TANK FUN WITH WORDS UP TO 7 YEARS	4.99
THUNDERBIRDS	2.99
TRACK SUIT MANAGER	1.99
TRIVIA	2.99
*DIZZY DOWN THE RAPIDS	3.75
*SPELLBOUND DIZZY	3.75
*DIZZY PRINCE OF THE YOLK FOLK	3.75
TRIVIAL PURSUITS	3.75
TURBO THE TORTOISE	3.75
ULTIMATE GOLF	3.50
WORLD CRICKET	2.99
WWF	2.99
WWF 2 EUROPEAN RAMPAGE	3.75

*Choose any 2 Dizzy's for £5

LEMMINGS
CASS 10.99 DISK 12.99

✱ DISK COMPILATIONS ✱

SUPER FIGHTER Pit Fighter/WWF/Final Fight	6.99
2 HOT 2 HANDLE Shadow Warriors/Golden Axe/Total Recall/Super Off Road	6.99
HOLLYWOOD COLLECTION Ghostbusters 2/Indiana Jones/Robocop/Batman	6.99
SPORTS COLLECTION Pro Tennis Tour/Run the Gauntlet/ World Cup Soccer Italia 90	5.99
DREAM TEAM Simpsons/WWF/Terminator 2	6.99
CHAMPIONS J Khan Squash/Manchester United/World Champ Boxing Manager	4.99
WIZARD PACK (SPECIAL PRICE) Scrabble, Cluedo, Risk (not boxed)	4.99
MOVIE PREMIERE Turtles/Back to the Future 2/Gremlins 2/Days of Thunder	3.99

OUR CHOICE - 10 GAMES FOR £6.00

CHOOSE ANY 6 OF THE FOLLOWING TITLES FOR £5.00
AUSSIE FOOTBALL, CONFUSION, CRICKET INT, FALLEN ANGEL, DANDY, GAME OVER, GAME OVER 2, GRANDMASTER CHESS, GRID IRON 2, HIDEOUS, MAGIC RUFUS, RECKLESS RUFUS, LAST NINJA, ZOIDS, WHO DARES WINS 2, OPERATION HORMUZ, TILT, BULLY'S SPORTING DARTS, MEAN MACHINE, SYNTAX, SAM FOX, ANTIRIAD, THEATRE EUROPE

CHOOSE ANY 3 OF THE FOLLOWING SPORTS TITLES FOR £5.00
THE BOXER, JK SQUASH, LEAGUE FOOTBALL, INT. FOOTBALL, RUGBY COACH, FINAL WHISTLE, SOCCER DOUBLE, SOCCER DOUBLE 2, CRICKET MASTER, EURO BOSS, WORLD BOXING MAN, STRIKER, JIMMY'S SOCCER MAN, 2 PLAYER SOCCER SQUAD, SOCCER PINBALL, SNOOKER MANAGEMENT, THE DOUBLE, WORLD RUGBY, SCOTTISH FOOTBALL, CHAMPIONSHIP SPRINT

✱ C. 64 DISKS ✱

Cool World	4.99
New Zealand Story	4.99
Liverpool	10.99
Space Gun	4.99
Smash T.V.	4.99
Nick Faldo Champ Golf	13.99
North and South	4.99
Die Hard 2	3.99
Football Manager 2 + Exp Kit	4.99

✱ C. 64 Cartridges ✱

Chase H.Q. 11	5.99
Toki	5.99
Robocop 3	5.99
Double Dragon	6.99
Battle Command	5.99
Robocop 2	5.99
Navy Seals	5.99
Shadow of the Beast	5.99

✱ CASSETTE ✱ COMPILATIONS

POSTMAN PAT COLLECTION Postman Pat 1, 2 + 3	3.99
POPEYE COLLECTION Popeye 1, 2 + 3	3.99
KIDS PACK 2 Fireman Sam/Count Duckula 2/Popeye/Postman Pat 2/ Huxley Pig/Bangers and Mash	5.99
SOCCER SPECTACULAR World Champions/Peter Shilton's Handball Maradonna/Football Manager/Peter Beardsley's Int Football/Soccer Supremo	4.99
BIG BOX 2 (ON CASSETTE OR DISK) Delta/Zoids/Barbarian II/Alleykat/Tunnel Vision/Battle Valley + many others (30 games in all)	9.99
CARTOON COLLECTION (SPECIAL PRICE) Dizzy/CJ's Elephant Antics/Slightly Magic/Spike in Transylvania/ Seymour goes to Hollywood	4.50
SUPER SPORTS CHALLENGE Slicks/Cueboy/1st Division Manager/Wrestling Superstars/ Int Speedway	5.99
SMASH 16 Sky High Stuntman/SAS/KGB Superspy/Super G man Superhero/ MIG 29/Guardian Angel/Ghost Hunter/Robin Hood/Poltergeist/Ninja Massacre/Arcade Flight	5.99
THE COLLECTION American Football/Agent Orange/Chubby Gristle/Saint + Greavsie/Scrambled Spirits + many more (30 games in all)	6.99
100% DYNAMITE Double Dragon/Afterburner/Last Ninja 2/WEC Le Mans	5.50
SUPER FIGHTER Final Flight/Wrestlemania/Pit Fighter	4.99
POWER UP Altered Beast/X Out/Rainbow Islands/Chase HQ/Turrican	5.50
CHAMPIONS 5 Khan Squash/Man Utd/World Boxing Manager	2.99

GAMES SUBJECT TO AVAILABILITY. PLEASE NOTE - A PHONE CALL RESERVES YOUR ORDER. ORDERS £5.00 AND UNDER ADD 50P P + P
CHEQUES + POSTAL ORDERS MADE PAYABLE TO WIZARD GAMES. OVERSEAS CUSTOMERS ADD £1.00 PER ITEM P+P. PLEASE ALLOW 7 DAYS FOR DELIVERY
SEND SAE FOR FULL LISTS

MEGATRONIX PD

- For the very best in C64 Public Domain! -

PLEASE SEND A BLANK DISK AND AN S.A.E. FOR OUR CATALOGUE DISK, OR JUST AN S.A.E. FOR OUR TAPE CATALOGUE!

★ SOFTWARE COMPILATIONS ★

A mixed collection of Games, Music, Demo's, Util's etc - on five disks!	£5.00
Mammoth compilation of over 75 PD Games - spread over ten disks!	£10.00
Second collection of even more Util's, Graphics, Games, etc! Ten disks!	£10.00
Five disks of those invaluable utilities! Word processors, disk copiers, etc!	£5.00
HUGE batch of the very latest demo releases - on ten jam-packed disks!	£10.00
More handy util's? OK! Here we go - another ten disks of 'em! Get this!	£10.00
Running a business couldn't be easier with this great five-disk mix! A must!	£5.00
Here's one for bookworms - five disks of the best and most recent disk mags!	£5.00
Digitised music collection! Samples from UB40, Sam Fox, Paula Abdul, etc!	£5.00
Feeling adventurous? Try this collection of Text Adventures - on five disks!	£5.00
Compose music in fine style with this massive five disk mix of fab music editors!	£5.00
Three C90 Cassettes containing Demo's, Games, and Utility programs!	£10.00
Collection of over 35 fully playable PD Games - on two tapes! Excellent mix!	£6.50
Demo Tapes 1, 2, 3 or 4 - all the hottest demo's! All 4 tapes for £12.50 or £3.50 each!	
Sampled/Digitised sound & music! Hear your '64 at its VERY best with this tape.	£3.50

★ COMPUTER ACCESSORIES ★

Pack of 10 Blank 5.25" Disks - £3.50
Pack of 50 Blank 5.25" Disks - £16.50
100 Capacity Disk Box - £8.50
10 Disk Capacity Library Case - £1.75
200 Tractor Feed Labels - £2.75
1000 Tractor Feed Labels - £8.50
Ribbon "Re-Ink" Spray (120ml Can) - £13.75
Cheetah 125+ Joysticks - £10.50

Please make Cheques and Postal Orders payable to: 'D. Kelly'. Thank you!

21 Tiled House Lane, Pensnett, Brierley Hill, West Midlands, DY5 4LG
Telephone: (0384) 77172 Facsimile: (0384) 484083

COMMODORE SUPPLIES

Commodore 64 power supplies	£22.99
Commodore 64/128 compatible cassette recorders	£19.99
Commodore cassette head demagnetizers	£9.99
Commodore 64/128 light gun & games (cas & disc)	£29.99
Replacement cassette recorder plug and lead	£5.99
Commodore 64 user manuals	£4.99
Commodore R.F. Leads (computer to TV)	£3.99
Commodore 64c modulators	£9.99
Commodore printer/disc drive lead (6 pin din)	£5.99
Commodore Colour monitor leads(din/3 phono)	£6.99
Commodore light pens & software (cas/disc)	£29.99
Commodore C64/C128 parallel printer interface	£29.99

C64/PARALLEL INTERFACE TYPE 92008/G

The C64/Parallel printer interface model 92008/G is designed to connect almost any parallel printer to your Vic 20 or C64 computer, and will also operate with the C16, plus 4 and C128.

Together with most types of printers, the interface will be fully compatible with the CBM printer MPS 801, Other printer types (e.g. daisy wheel printers or printers that do not have graphics capability or have an unusual kind of graphics) will be able to print all ACSII characters and all printer functions will be available.

It is necessary for the connected printer to have an interface to the centronics standard. Most printers are offered with this interface as the principal, lowest cost, option.

As the printer will not be modified it can be used with its original centronics interface at any time, thus if you change your computer system later on, you will be able to keep your printer and connect it to another computer by simply changing the interface/cable.
Price £29.99 inc p&p.

If you would like to be put on our regular mailing list for special offers etc. please write and advise us stating which computer model you have.

We also deal with Spectrum & Amstrad Computers.

All orders sent by return: Cheques/Visa/Access/PO's

Trading Post, Victoria Road,
Shifnal, SHROPSHIRE TF11 8AF
Tel/Fax (0952) 462135

Access VISA

ULTRA SOFTWARE

NEW COMMERCIAL SOFTWARE RANGE

3D Pool	£3.45
4 in 1 Hitpack (4 games)	£2.95
Addams Family	£3.45
Addicta Pack	£2.95
Baby Boomer (Q. Pack)	£2.95
Ballistix	£2.95
Bangers & Mash	£3.45
Best of Elite - vol 1 (4 games)	£2.95
Best of Elite - vol 2 (4 games)	£2.95
Both 'Best of Elite' volumes	£4.95
Beyond The Ice Palace	£2.95
Big 4 - vol 2	£2.95
Blood Brothers	£1.95
Bobsleigh	£2.95
Bristles	£1.95
Bubble Dizzy	£3.45
Caesar the Cat	£1.95
Camage	£3.45
Championship Wrestling	£3.45
Classic Arcadia - vol 3	£3.45
Continental Circus	£2.95
Count Duckula 2	£3.45
Creatures	£3.45
Dizzy Down the Rapids	£.3.45
Dizzy Panic	£3.45
Doc Croc's	£2.95
Fantasy World Dizzy	£3.45
Final Flight	£3.45
Fist 2	£2.95
Flimbo's Quest	£3.45
Flying Shark	£2.95
Football Manager	£2.95
G. Souness Soccer Man	£3.45
Gazza's Super Soccer	£3.45
Gemini Wing	£2.95
Hero Quest	£4.45
Hopping Mad	£2.95
Hypersports	£2.95
Jahangir Kahn Squash	£3.45
Karnov	£2.95
Kellogg's Tour	£2.95
Kwiksnax	£3.45
Last Ninja 3	£3.45
Lethal Weapon	£3.45
Licence to Kill	£2.95
Mask	£1.95
Menace	£2.95
Mercs	£.3.45
Miami Vice	£2.95
Narco Police	£3.45
Navy Moves	£2.95
Power Pack	£2.95
Rambo	£2.95
Rodland	£3.45
Roller Coaster Rumble	£2.95
Shadow Dancer	£3.45
Skull & Crossbones	£3.45
Soccer Double - vol 1+2	£3.45
Space Gun	£3.45
Spitting Image	£2.95
Sports Pack	£2.95
Star Pack	£2.95
Street Fighter	£3.45
Street Fighter 2	£3.45
Both Street Fighter games	£5.95
Super Space Invaders	£3.45
Super Sprint	£2.95
Supertrux	£2.95
T. Brooking World Cup Glory	£2.95
Table Tennis	£3.45
Tai Chi Tortoise	£3.45
The Simpsons	£3.45
Total Recall	£3.45
Treasure Island Dizzy	£3.45
Water Polo	£2.95
Wheels of Fire (4 games)	£4.95
Wicked	£2.95
World Championship Squash	£3.45
WWF European Rampage	£3.45
WWF Wrestlemania	£2.95
Both WWF games for	£5.45

THIS WAS OUR RANGE AT TIME OF GOING TO PRESS - OUR PRODUCT GUIDE CONTAINS DETAILS OF ANY NEW SOFTWARE WHICH WE NOW STOCK

CUSTOMER SERVICES INFORMATION

IF YOU WOULD LIKE MORE INFO ON THESE AND OTHER GREAT C64 PRODUCTS CALL US NOW ON

☎ **(0295) 73 00 60** ☎

FOR YOUR COPY OF OUR LATEST PRODUCT GUIDE

LOWEST PRICES IN COMMODORE FORMAT
FREE DELIVERY IN U.K. - OVERSEAS AT COST
A MASSIVE SOFTWARE & SUPPLIES RANGE

CALLING ALL COMMODORE SUPPORTERS

IF YOU HAVE A PRODUCT - EITHER SOFTWARE OR HARDWARE - WHICH YOU HAVE PRODUCED, THEN WE WOULD LIKE TO SELL IT FOR YOU. SEND A SAMPLE NOW AND WE'LL EVALUATE ITS SALES POTENTIAL AND OFFER YOU SOME EXCELLENT TERMS - WITH NO OBLIGATION!

AT THE TIME OF WRITING, NEGOTIATIONS ARE IN PROGRESS WITH A NUMBER OF INDEPENDENT SOFTWARE PRODUCERS, SO BY NOW WE SHOULD HAVE A NEW SOFTWARE RANGE -

SEE OUR LATEST PRODUCT GUIDE FOR DETAILS!

DISKS, LABELS & CLEANERS

	x1	x5	x10	x20	x50	x100
5.25" Branded	£0.65	£2.95	£4.95	£8.95	£22.45	£42.45
5.25" Bulk	£0.55	£2.45	£3.95	£7.45	£17.45	£32.45
3.5" Branded	£0.85	£3.95	£6.95	£12.95	£29.95	£54.95
3.5" Bulk	£0.55	£2.95	£4.95	£9.45	£22.45	£42.45
5.25" Disk Labels		£0.15	£0.25	£0.45	£0.95	£1.45
3.5" Disk Labels		£0.25	£0.40	£0.65	£1.25	£1.95

Disk drive head cleaners (state disk size) £3.95

STORAGE

10 3.5" cap Case £1.75
40 3.5" cap Lockable £5.45
80 3.5" cap Lockable £6.45
10 5.25" cap Case £1.95
50 5.25" cap Lockable £6.45
100 5.25" cap Lockable £7.45

SPECIAL OFFERS

Cleaner £2.95 if buy 10 disks
Cleaner £1.95 if buy 20 disks
Free cleaner if buy 50 disks
Free cleaner and disk storage box if buy 100 disks

QUALITY PRINTER RIBBONS

Mono - Price Band A: 1 - £2.45 2 - £4.45 5 - £9.95 10 - £17.95
Star LC10/20/100 Amstrad DMP2000/2160/3000/3160/4000
Mono - Price Band B: 1 - £2.95 2 - £5.45 5 - £11.95 10 - £21.95
Star LC200 Star LC24 - 100/200 Citizen 120D Swift 9/24
Seikosha SP1900+ Epson LX400/800 LQ400/570/800/870
Mono - Price Band C: 1- £3.45 2 - £6.45 5 - £13.95 10 - £25.95
Panasonic KX-P1123/1170 Amstrad PCW8512/8256/9512
Amstrad LQ3500 Mannesmann Tally MT80/81/85/86
Multi-Coloured Buy 2 & SAVE £2 BUY 5 & SAVE £8
Star LC10/100 - £8.95 LC200 - £9.95 LC24-200 - £10.95

PAPER/LABELS

	x100	x500	x1000	x2000	x4000
11" x 9.5" Listing Paper	£1.95	£6.95	£10.45	£17.95	£29.95
Exact A4 Listing paper	£2.45	£8.45	£12.95	£24.95	£41.95
3.5" x 1.5" Address labels	£1.45	£5.45	£7.95	£12.95	£19.95
Coloured* Address Labels	£2.45	£7.95	£11.95	£19.95	£34.95

*Available in blue, red, yellow & green - or assorted

ACCESSORIES

MOUSE BITS

Mouse Mat	Mouse House
£2.95	£1.95

BOTH ONLY £3.95

DUST COVERS

Keyboard	Monitor
£3.95	£4.95

BOTH ONLY £7.95

PRINTING

1 for £6.45 2 - £11.95
3 - £16.95 4 - £20.95
Computer to Printer Lead
Universal Printer Stand
A4 Standing Copy Holder
Printer Dust Cover

WE STOCK 100s MORE RIBBONS, AND WE THINK WE CAN GET RIBBONS/CARTRIDGES FOR ANY PRINTERS. WE ALSO STOCK PRINTERS AND A WIDE RANGE OF STATIONERY - OUR PRODUCT GUIDE CONTAINS ALL THE INFORMATION, PHONE (0295) 730060 FOR YOUR COPY

Product guide available - write or phone for yours. Postage in Britain is FREE, overseas orders at cost. Please make cheques postal orders payable to ULTRA SOFTWARE and send your order to Ultra Software (CF45), Fulling Mill, Broughton, Banbury Oxon OX15 6AP